Executive Summary: US Economic Outlook

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Forecast overview

COVID-19 spread and social distancing drives an historic contraction in US and global economies

- Supply chain disruptions and sharp declines in demand related to the extreme steps to limit the spread of COVID-19 — namely strict “social distancing” mandates — along with energy sector weakness from the epic decline in oil prices, are resulting in a deep global contraction of uncertain depth and duration. Production and employment in the US and global economies are set to decline very sharply in the second quarter, continuing a decline that began in the first quarter. The mandated, and quite sensible, policy of social distancing has shut down a broad swath of the global economy, and knock-on effects will impose further economic damage.
- Massive layoffs in directly impacted industry sectors and sharp declines in the prices of risky assets point to unprecedentedly sharp declines in employment and income and negative wealth effects that further contribute to both the near-term and longer-lasting effects restraining consumer spending. We have now revised downward our forecast of US GDP growth in 2020 to -7%.[1]
- We assume the pandemic will peak in the second quarter of this year, with new cases dwindling to low enough numbers by early in the third quarter to permit a relaxation of social distancing mandates. The biggest hit to growth will come in the second quarter, when consumer spending — the epicenter of the economic impact on the demand side — is expected to plunge at an astounding 32% annualized rate. This, in combination with declines in housing, non-residential construction and other components of business investment, and inventory investment will result in an unprecedented 26.5% annual rate of decline in GDP in the second quarter.
- Employment is projected to fall by 14 million or more by year end, and the unemployment rate will breach 10%. However, the latest data on initial claims for unemployment and other indicators suggest the peak in unemployment could be much higher. Core PCE inflation is projected to drop to just over 1% by early 2021, and remains below 2.0% through most of 2023.[2]
- Thanks to quick cuts in the Fed policy rate, massive injections of liquidity, and guidance to banks for exceptional forbearance, credit markets continue to operate; nevertheless, equity and bond markets have seen sharp declines in prices. Equities are assumed to stabilize in the second quarter, following a 20% decline and begin a moderately sharp rebound in the third quarter. Ten-year Treasury note yields are assumed to average below 1% for much of the next two years before edging higher.

COVID-19 changes everything

- The spread of COVID-19 with its ease of transmission and deadly effects has rightfully panicked officials and resulted in significant disruptions in economic activity.
- Spending on “socially dense” consumer services such as air travel, cruises, sporting events, gambling, movies and dining out, etc., has collapsed as a result of “social distancing.” Substitution toward other spending is possible, but limited. Moreover, mandated shutdowns of non-essential business has crippled most retail establishments except grocery stores and pharmacies and multiplied job losses.
- Add in the negative wealth and income effects, and overall consumer spending is declining at unprecedented rates, and there will be a legacy of weakened spending that will limit the vigor of the recovery.
- Global PMI’s are signaling a sharp decline in capex as businesses respond with extreme caution in the face of unprecedented uncertainty.
- The responses in financial markets are nothing short of breathtaking. To be sure, sharp weakening in the economy justifies lower stock valuations, but the extent of declines in stock prices broadly portends a huge and sustained decline in earnings, which is not likely to be the result of COVID-19. More likely, it is short-term loss-avoidance trading activity that has magnified selling pressure and price declines, and an eventually sharp rebound remains likely.

A supply shock and a demand shock

- Supply-chain disruptions related to factory closures and production slowdowns resulting from geographically-based quarantines, and workers out due to illness is a direct drag on economic activity. Related layoffs will impact demand.
- Mandated and voluntary “social distancing” has shut down a significant percentage of consumer and business spending, not to mention the induced effects from lost income, wealth and earnings that will have more persistent effects.
- COVID-19 spread to healthcare workers and shortages of ventilators could push the mortality rate higher.

Policy responses:

- The Federal Reserve and other central banks have already responded aggressively with rate cuts, new quantitative easing, massive liquidity programs and regulatory forbearance.
- Fiscal policy actions are beginning to ramp up, but may be too small and too slow to make much difference this year. Enhanced and extended unemployment benefits, direct broad-based cash payments and forgivable loans will help prevent even sharper declines. The US Treasury is backstopping Fed liquidity programs with credit protection.

1. This forecast originally was completed and issued on 1 April 2020. Unless otherwise noted, all quarterly growth rates are expressed as compound annual rates, all expenditure components of GDP are chained 2012 dollars, and all annual growth rates are stated as Q4 over Q4 percent changes.

2. PCE is the acronym for personal consumption expenditures.

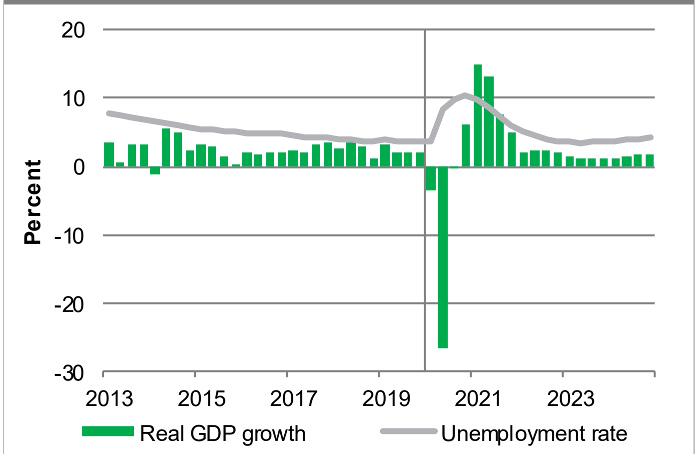
Summary of the US Economy

	Annual rates					Annual averages					Q4/Q4				
	2019:4	**2020:1**	**2020:2**	**2020:3**	**2020:4**	**2019**	**2020**	**2021**	**2022**	**2023**	**2019**	**2020**	**2021**	**2022**	**2023**
Composition of Real GDP, Percent Change															
Gross Domestic Product	2.1	-3.5	-26.5	-0.4	6.0	2.3	-5.4	6.3	4.0	1.6	2.3	-7.0	10.1	2.2	1.2
Final Sales of Domestic Product	3.1	-2.7	-26.2	5.6	7.5	2.2	-4.1	4.9	3.4	2.0	2.7	-5.0	6.7	2.4	1.6
Gross Domestic Income	2.6	-3.3	-26.4	-0.1	6.3	1.9	-5.3	6.5	4.1	1.7	2.0	-6.8	10.3	2.2	1.3
Avg. of GDP and GDI	2.4	-3.4	-26.5	-0.3	6.2	2.1	-5.4	6.4	4.1	1.7	2.2	-6.9	10.2	2.2	1.3
Total Consumption	1.8	-4.7	-32.2	8.4	12.6	2.6	-5.5	7.2	3.9	1.2	2.7	-5.8	9.4	1.5	1.2
Durables	2.8	-11.2	-51.4	30.1	21.0	4.8	-9.1	13.4	6.5	2.2	5.9	-9.2	16.1	2.8	2.4
Nondurables	-0.6	2.0	-9.6	-2.4	-0.1	3.2	-0.9	3.1	2.7	0.4	3.0	-2.6	6.4	0.7	0.6
Services	2.4	-5.6	-34.9	9.2	15.6	2.1	-6.3	7.6	3.8	1.2	2.1	-6.2	9.3	1.6	1.2
Nonresidential Fixed Investment	-2.4	-6.8	-29.6	-19.7	0.7	2.1	-11.0	4.5	7.2	3.2	-0.4	-14.7	14.6	4.3	2.6
Equipment	-4.3	-15.2	-34.3	-25.4	2.0	1.3	-15.2	6.3	8.0	2.1	-1.8	-19.3	19.2	3.6	1.4
Information Processing Equipment	0.8	-7.8	-3.6	-15.3	-3.7	3.9	-5.1	8.7	7.4	0.7	2.4	-7.7	17.9	3.1	-0.7
Industrial Equipment	-12.6	-13.5	-9.6	-30.8	-28.4	1.1	-12.7	7.1	8.5	-2.1	-2.2	-21.1	28.7	1.5	-3.8
Transportation equipment	-0.6	-26.7	-87.7	160.7	24.1	-1.0	-29.0	8.1	22.5	18.8	-6.4	-26.5	12.6	25.2	15.0
Aircraft	113.1	-61.0	-91.5	285.1	138.7	-31.9	-44.0	74.1	40.3	12.9	-45.1	-25.7	78.9	22.9	14.3
Other Equipment	-7.4	-14.3	6.7	-76.5	34.1	0.2	-17.2	-0.3	-5.4	-10.3	-2.7	-26.7	19.2	-14.1	-6.7
Intellectual Property Products	2.8	5.5	-17.5	-6.1	4.7	7.5	-1.4	9.3	6.9	3.1	5.4	-3.8	15.1	4.3	2.1
Structures	-7.2	-9.1	-39.6	-31.3	-9.4	-4.3	-18.3	-7.9	6.1	5.9	-6.2	-23.5	4.4	5.8	6.0
Commercial & Health Care	1.2	-15.1	-38.4	-32.5	3.8	-4.8	-17.1	0.5	16.4	5.4	-2.9	-22.2	16.1	11.6	5.0
Manufacturing	2.1	-5.7	-55.2	-20.8	-20.8	2.0	-18.2	-9.7	-2.0	5.1	1.6	-28.3	4.2	-5.1	10.0
Power & Communication	5.1	6.2	-12.2	-27.5	-22.8	-3.2	-5.2	-18.4	-10.5	-3.2	1.6	-15.0	-15.1	-5.1	-3.3
Mining & Petroleum	-30.7	-10.0	-67.0	-36.0	-7.9	-8.8	-33.5	-12.1	3.9	13.7	-20.0	-35.3	2.4	10.0	9.9
Other	-10.3	-15.0	-23.3	-35.3	-5.1	-2.9	-17.1	-3.6	11.8	9.3	-7.7	-20.4	10.3	9.4	10.5
Residential Fixed Investment	6.5	13.9	-57.4	-26.6	-2.9	-1.5	-13.5	2.3	10.4	-0.1	1.7	-23.3	22.1	3.4	-1.1
Exports	2.1	-5.1	-17.3	0.1	5.9	0.0	-4.2	7.2	5.1	4.0	0.3	-4.5	10.1	4.0	3.9
Imports	-8.4	-8.9	-33.4	-24.9	14.6	1.0	-13.0	13.4	8.7	-2.3	-2.1	-15.0	27.9	-1.5	-0.5
Federal Government	3.4	1.4	6.7	1.9	0.3	3.5	3.4	0.9	-0.3	-2.1	4.3	2.5	0.2	-0.8	-2.4
State & Local Government	2.0	1.7	-3.2	2.1	1.8	1.6	0.8	1.8	1.1	0.7	2.2	0.6	2.0	0.7	0.8
Prices & Wages, Percent Change															
GDP Deflator	1.3	1.3	1.4	1.7	1.4	1.8	1.5	1.4	1.5	2.0	1.6	1.4	1.3	1.7	2.1
Consumer Prices	2.4	1.6	-6.3	3.8	3.1	1.8	0.7	2.1	2.7	2.7	2.0	0.5	2.3	3.0	2.4
Producer Prices, Finished Goods	3.3	-1.9	-11.6	9.7	9.5	0.8	-0.3	3.8	2.8	2.8	1.0	1.0	2.5	3.3	2.4
Employment Cost Index - Total Comp.	2.6	2.7	0.6	-1.4	-1.2	2.7	1.6	0.1	2.0	2.7	2.7	0.2	1.1	2.3	2.8
Other Key Measures, Percent Change															
Total Industrial Production	0.2	-7.3	-35.4	-19.7	-7.8	0.9	-12.2	0.3	4.8	2.0	-0.7	-18.4	11.3	2.5	1.3
Payroll Employment	1.7	2.0	-18.4	-12.7	-4.5	1.4	-4.5	-0.9	5.7	2.1	1.4	-8.7	5.8	4.3	1.1
Financial Markets, NSA, Quarter Average															
S&P 500 Stock Index (four-quarter % change)															
(Average of period)	18.4	-2.2	-49.8	12.6	31.3	6.1	-4.2	20.0	9.6	1.1	14.7	-7.7	24.6	4.7	0.6
(End of period)	28.9	-8.8	-12.2	-7.9	-8.5	11.2	-9.4	26.2	7.6	0.7	28.9	-8.5	21.1	3.8	1.1
Exchange Rate, Broad Index (%change, annual rate)	-0.2	5.3	27.3	0.5	-1.0	3.3	6.7	-0.5	-5.5	-3.0	0.6	7.5	-4.0	-4.9	-2.1
Incomes, Percent Change															
Personal Income	3.1	4.3	-1.9	1.1	-5.3	4.4	1.7	3.1	4.7	3.8	4.1	-0.5	6.5	3.7	3.8
Real Disposable Income	1.6	2.9	9.8	1.6	-7.3	2.9	2.9	1.4	1.1	1.2	2.4	1.6	3.0	0.4	1.6
	Levels					Annual averages					Q4 values				
Billions of Dollars															
Real GDP	19222	19050	17638	17620	17881	19073	18047	19189	19956	20280	19222	17881	19690	20114	20365
Nominal GDP	21729	21603	20071	20136	20502	21428	20578	22181	23413	24259	21729	20502	22870	23754	24555
Other Key Measures															
Brent Crude, Spot Price ($/bbl)	63.38	50.89	11.33	23.00	30.00	64.34	28.80	36.13	51.26	61.50	63.38	30.00	39.00	58.59	62.55
Factory Operating Rate	75.0	73.3	63.3	59.6	58.7	75.6	63.7	65.2	69.6	71.0	75.0	58.7	68.2	70.4	71.2
Nonfarm Inven. Chg. (Bil. 2012 $)	19.0	-29.4	-54.8	-362.8	-438.1	75.3	-221.3	51.9	185.8	117.9	19.0	-438.1	212.2	158.3	91.6
Light Vehicle Sales (Mil. units, saar)	16.73	15.22	10.01	13.57	14.12	16.89	13.23	15.05	15.57	15.75	16.73	14.12	15.34	15.69	15.77
Housing Starts (Mil. units, saar)	1.441	1.443	0.954	0.925	0.988	1.298	1.077	1.121	1.259	1.244	1.441	0.988	1.208	1.264	1.228
Exist. House Sales (Total, Mil. saar)	5.420	5.414	3.972	4.232	4.704	5.330	4.581	5.729	6.221	5.822	5.420	4.704	6.213	6.112	5.695
Unemployment Rate (%)	3.5	3.6	8.4	9.9	10.3	3.7	8.0	7.9	4.3	3.6	3.5	10.3	6.0	3.7	3.7
Federal Surplus (Unified, nsa, bil. $)	-356.6	-422.3	-458.2	-713.2	-665.6	-1022.0	-2259.3	-1972.6	-1294.5	-1090.5	-356.6	-665.6	-484.2	-306.6	-308.6
Current Account Balance (Bil. $)	-439.3	-383.3	-61.3	147.4	109.8	-498.4	-46.8	-181.6	-409.6	-287.1	-439.3	109.8	-389.0	-366.6	-251.2
Financial Markets, NSA, Quarter Average															
Federal Funds Rate (%)	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	1.64	0.11	0.13	0.13	0.13
3-Month Treasury Bill Rate (%)	1.58	1.11	0.01	0.03	0.06	2.06	0.30	0.09	0.10	0.11	1.58	0.06	0.10	0.11	0.11
10-Year Treasury Note Yield (%)	1.79	1.56	0.81	0.39	0.53	2.14	0.82	0.99	1.35	1.59	1.79	0.53	1.16	1.45	1.65
30-Year Fixed Mortgage Rate (%)	3.70	3.50	3.50	2.98	2.93	3.94	3.23	3.01	3.07	3.23	3.70	2.93	3.01	3.13	3.31
S&P 500 Stock Index (average of period)	3086	3069	2583	2661	2848	2912	2790	3348	3671	3710	3086	2848	3548	3715	3738
S&P 500 Stock Index (end of period)	3231	2585	2582	2740	2956	2996	2716	3426	3688	3715	3231	2956	3581	3715	3754
Incomes															
After-Tax Profits (Billions of $)	15.4	-45.4	-75.8	137.1	93.4	0.3	-20.4	50.8	2.6	1.9	4.1	-11.8	38.6	-1.9	1.9

Source: IHS Markit

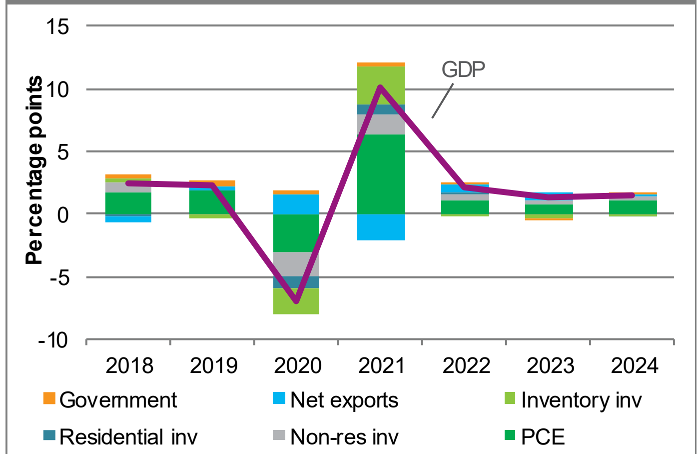
Forecast at a glance

Historic contraction in 2020 Q2



Source: IHS Markit, BEA, BLS © 2020 IHS Markit

Contributions to GDP growth



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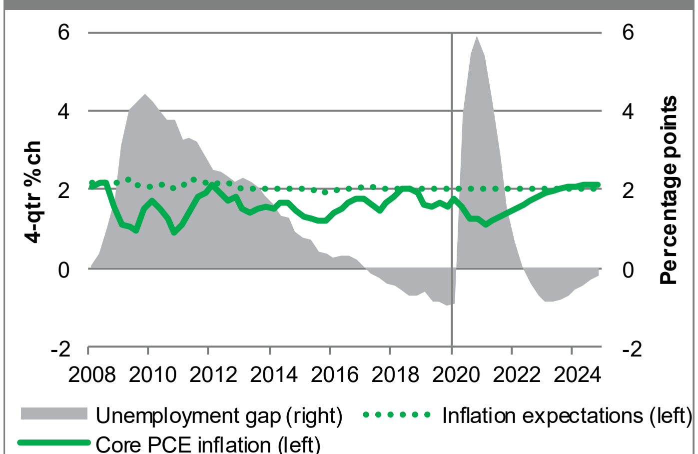
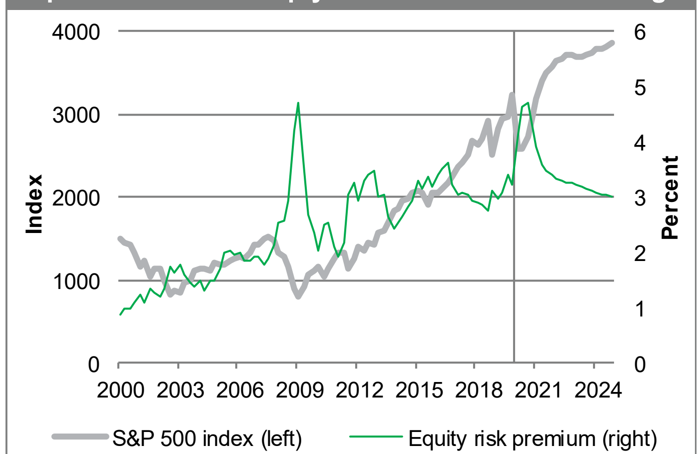
Core inflation to remain below 2% until 2023



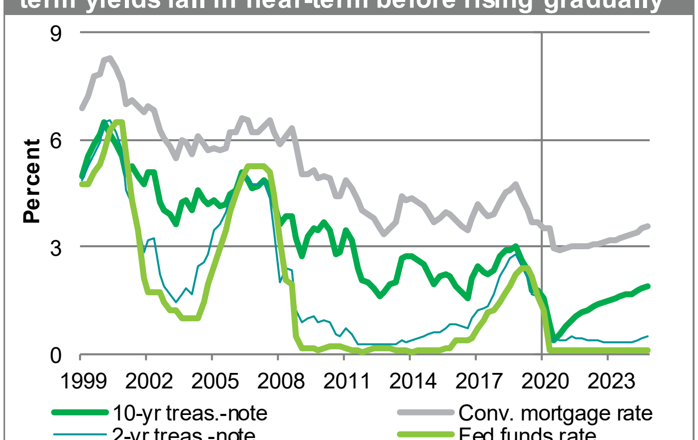
Source: IHS Markit, Philly Fed, BEA, BLS © 2020 IHS Markit

Equities decline sharply in 2020 before rebounding



Source: IHS Markit, S&P © 2020 IHS Markit

Fed keeps funds rate pinned at 0 through 2024, term yields fall in near-term before rising gradually



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Forecast overview

	2019	2020	2021	2022	2023	2024
Real GDP*	2.3	-7.0	10.1	2.2	1.2	1.5
		1.7	1.7	1.7	1.8	2.1
Pvt Final Dom Dem*	2.1	-8.0	10.6	2.0	1.3	1.7
		1.7	1.7	2.1	2.5	2.6
Unemployment Rate**	3.5	10.3	6.0	3.7	3.7	4.1
		3.6	3.8	4.0	4.3	4.3
Core PCE Inflation*	1.6	1.3	1.4	1.8	2.1	2.1
		1.9	1.9	1.9	1.8	1.9

* Q4 to Q4 percent change, ** Q4 average

Note: Prior base forecast values (published 3 March) shown below each line.

Source: IHS Markit © 2020 IHS Markit

What's new

Massive downgrade of 2020 GDP growth forecast to reflect effects of COVID-19

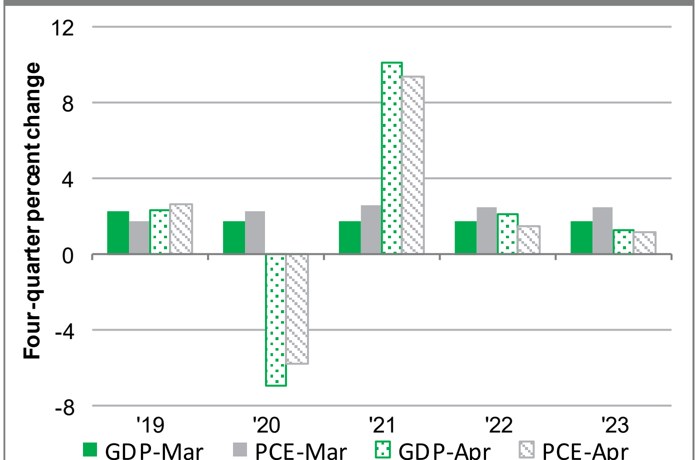
This month's forecast includes the largest monthly revisions to projected GDP growth we have ever made. With data confirming plunges in activities curtailed by "social distancing" to limit the spread of COVID-19, we lowered our forecast for GDP growth in the first quarter to -3.5%, in the second quarter to -26.5%, and to -7.0% over the four quarters of 2020. Last month's forecast of 3 March, completed before the disease was officially designated a pandemic, anticipated GDP growth of 1.7% over this year (see chart, top). The contraction is consumer-led, as restaurants, theatres, resorts, airlines, retail outlets, personal services, home and vehicle sales, sporting events, and other activities began shutting down during March. Reflecting our assumption that the rate of new infections tapers in the second half of the year and the consumption "shock" begins reversing in the third quarter, we project GDP growth of 10.1% over 2021, compared to 1.7% in last month's forecast.

The forecast includes aggressive monetary and fiscal policy responses to the crisis. We've incorporated the $2.3 trillion Coronavirus Aid, Relief, and Economic Security (CARES) Act that was signed by President Trump on 27 March. The CARES Act provides modest stimulus through "recovery rebates" and generous emergency unemployment benefits, while backstopping the economy with more than $1 trillion of loans, loan guarantees, grants, and subsidies (see Fiscal Policy). The Fed has lowered the federal funds rate to near zero, where we assume it is maintained through 2025, while also making massive net purchases of Treasury debt this year in a new round of "Quantitative Easing" (see chart, middle, and Monetary Policy). This lowers term Treasury yields by roughly a percentage point through 2025 relative to last month's forecast.

The combination of global recession and a price war between Saudi Arabia and Russia has created an unprecedented glut of crude oil. This compelled us to revise down sharply our projection for oil prices, which now shows the price of Brent crude plunging to $11 per barrel in the second quarter before beginning a gradual recovery (see chart, bottom). Consequently, by the fourth quarter, investment in wells and shafts falls roughly 40% from a year earlier, while domestic production of crude oil falls from nearly 13 million barrels a day in the first quarter of 2020 to less than 11 million barrels a day by the end of 2021. The adverse impact on GDP of lower energy investment and production easily outweigh the positive impact of lower gasoline prices because consumers are constrained from spending while policies of social distancing remain in effect.

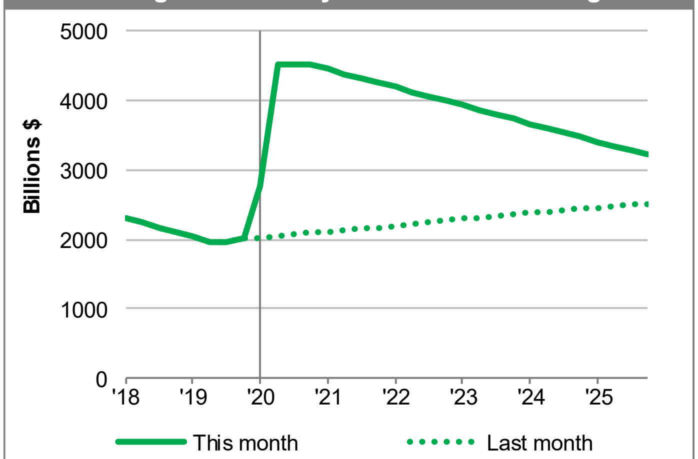
These changes affect more aspects of the forecast than can be highlighted here. Economic outcomes will depend critically on the pandemic's course, making all forecasts (and revisions) highly uncertain. Stay tuned as the situation evolves.

COVID-19 pandemic hammers growth in 2020



Source: IHS Markit © 2020 IHS Markit

Fed holdings of Treasury securities excluding bills



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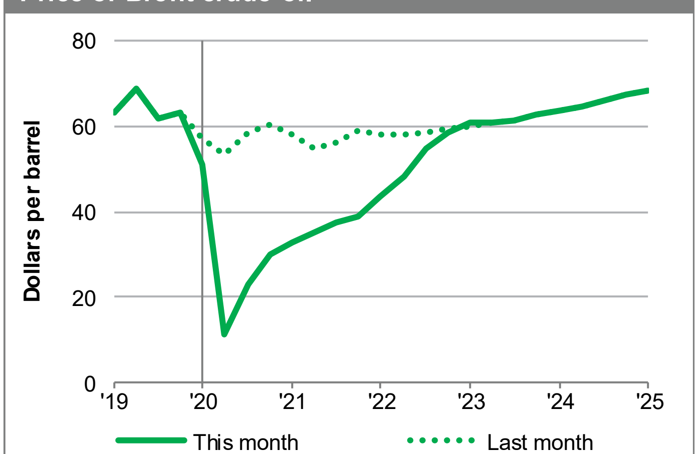
Price of Brent crude oil



Source: IHS Markit © 2020 IHS Markit

The view just ahead

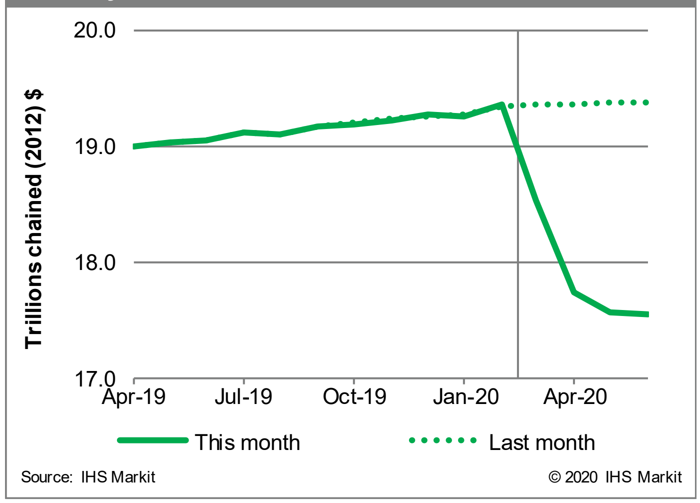
Leading edge of COVID-19 effects are showing up in the data; historic contraction coming in first half

We estimate that GDP declined at a 3.5% annual rate in the first quarter and will decline at a 26.5% rate in the second quarter. The average annualized decline over the first half of the year (15.8%) would be far and away the largest two-quarter decline in post-WWII data; the steepest prior decline was a 7.1% annualized decline over the two quarters ending the first quarter of 1958. The leading edge of the contraction is already apparent in several high-frequency indicators. Daily data from TSA on passenger throughput began weakening in early March, and by 26 March, was indicating more than a 90% decline in passenger traffic from one year ago. Daily data from Open Table also began weakening in early March and by 21 March was showing a 100% decline in seated diners from year-ago levels. Movie theater receipts were down 100% by 26 March, and hotel revenues were down about 80% by 28 March. Consumer spending on air transportation, purchased meals and beverages, movie theaters, hotels, and motels together accounted for about 5% of nominal GDP in the fourth quarter of last year. A 100% decline in this spending, if sustained for the duration of the second quarter, would imply a 20% annualized decline in GDP in the second quarter.

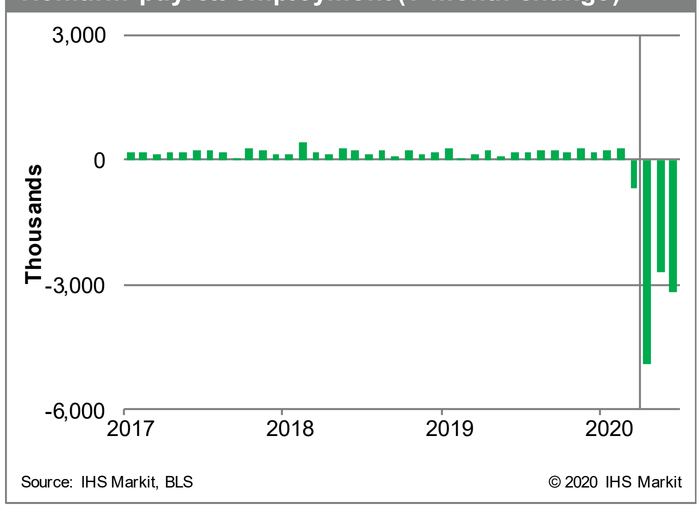
Spending in these areas may not be fully depressed for the entire second quarter, but there are many other areas of the economy that will be directly affected by efforts to stem the spread of COVID-19. Vehicle sales plummeted in March and will likely fall sharply again in April. Domestic vehicle production was shut down over the second half of March, and plants remain closed. While panic buying and stockpiling has led to surging demand for some consumer goods, many shopping malls have closed and much of the retail sector has switched to a “curbside pickup” model, limiting the volume of sales. Online demand has picked up, but that sector faces capacity constraints, too. Home sales and construction are set to take a hit in March, and business investment plans will likely be put on hold. In the energy sector, the recent sharp decline in oil prices has led to a sharp decline in mining activity in recent weeks that will show up in the National Accounts as a sharp decline in mining structures in the second quarter. The impact on the economy is evident in the last two weeks of data on initial claims for unemployment insurance and in the March employment report, in which civilian employment was reported to have declined by 3.0 million (1.9%), the largest one-month decline (and percentage decline) in data going back to 1948. March payroll employment declined 701 thousand, but we believe that figure was limited by an incomplete adjustment for business deaths.

Price cuts in affected service sectors will weigh on core consumer price inflation in coming months.

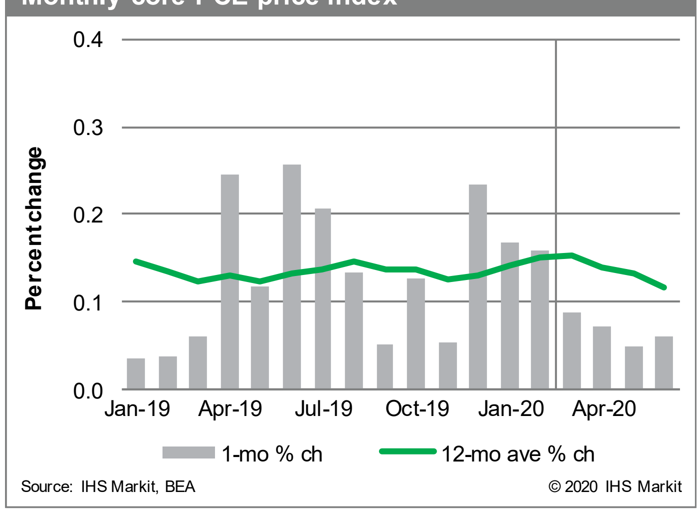
Monthly GDP



Nonfarm payroll employment (1 month change)



Monthly core PCE price index



Growth

2020 growth driven negative by shocks, multiplier-accelerator effects; persistent loss in potential output

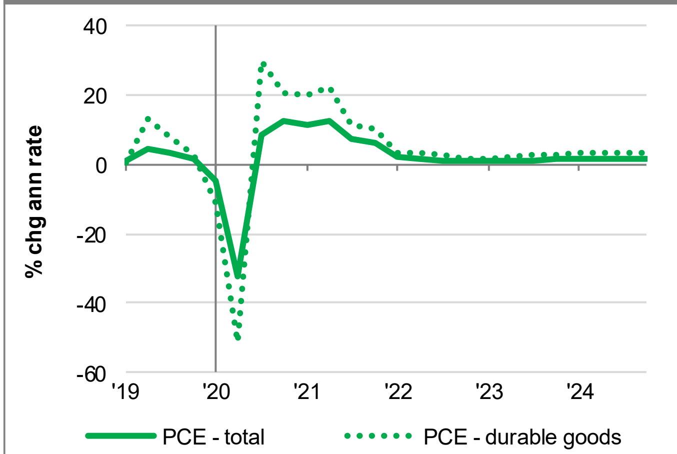
Our projections for near-term cyclical growth are dominated by our assumptions about the course of the COVID-19 pandemic, the resulting size of the negative shock to personal consumption expenditures (PCE), and the pace at which that shock reverses (see Key Forecast Assumptions). "Multiplier effects" in our model both amplify the effects of the assumed shock to PCE (and its reversal) on consumer spending and disseminate the shock to other sectors of the economy.

The fiscal response (the CARES Act, as we have implemented it; see Fiscal Policy), large as it seems on paper, provides only a small offset to the effects of social distancing on aggregate demand. The bottom-left chart depicts the 4-quarter percent change of GDP with and without our implementation of stimulus from the CARES Act. It is hard to see the difference.

Importantly, we model purchases of consumer and producer durables as investments subject to "accelerator effects" that lead to wider swings in such purchases than observed for spending on services. For example, while total PCE contracts at a 32% rate in the second quarter, spending on consumer durables declines at 52% rate (chart, top right). The rebound in spending on durables is also correspondingly stronger.

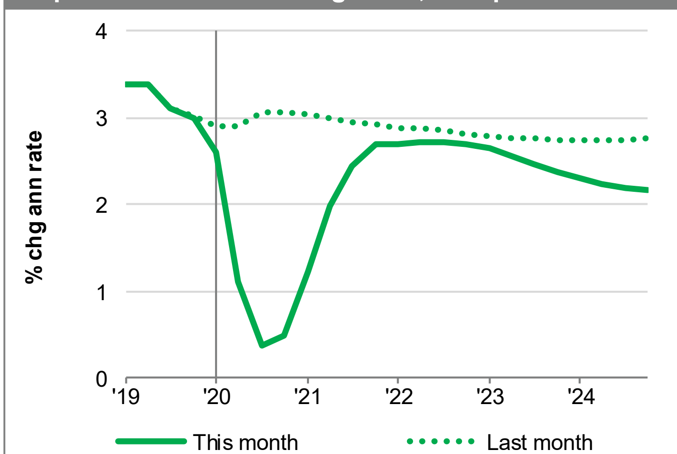
The contraction in aggregate demand casts a shadow forward on potential GDP, the level of which is undermined as a cyclical decline in capital spending leads to slower growth in capital services (chart, center right). Consequently, although the economy settles at full employment in 2024, with no output gap, the level of GDP remains roughly 1.5% below that of the March forecast (chart, bottom right). There is little impact on "trend" growth after 2024, which remains close to 2.1%. However, the growth of potential GDP through 2024 is only 1.6%, down 0.3 percentage point from last month's forecast.

Accelerator effects: PCE, total vs. durable goods



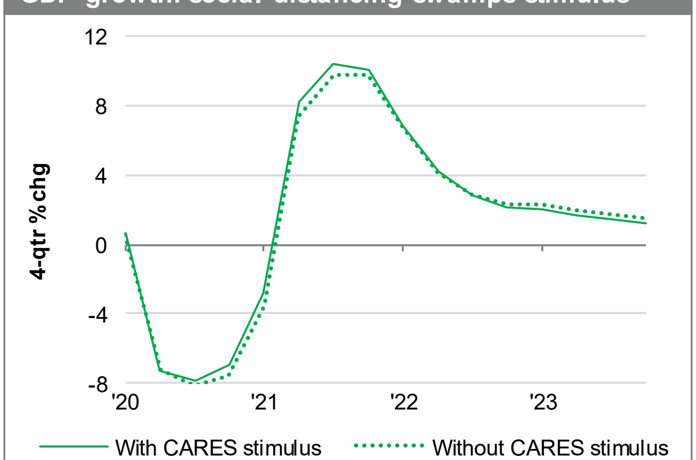
Source: IHS Markit © 2020 IHS Markit

Capital services: slower growth, less potential GDP



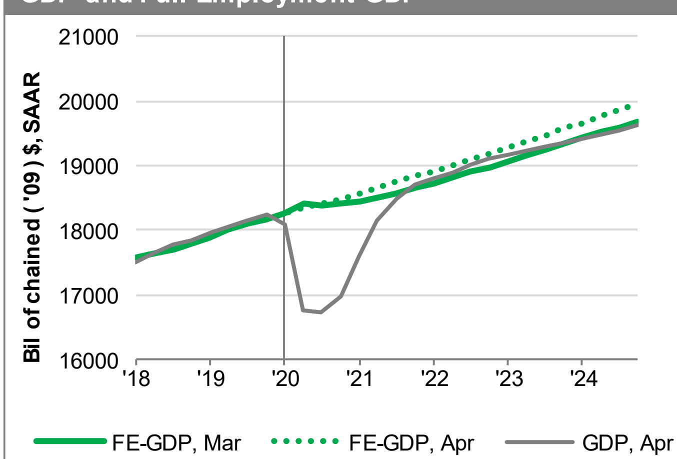
Source: IHS Markit © 2020 IHS Markit

GDP growth: social distancing swamps stimulus



Source: IHS Markit © 2020 IHS Markit

GDP and Full-Employment GDP



Source: IHS Markit, BEA © 2020 IHS Markit

Key forecast assumptions

New COVID-19 infections taper by third quarter, but hammer consumer spending in second quarter

COVID-19: The forecast assumes the spread of the virus in the US peaks and then tapers in the second quarter of the year to low enough levels to allow a gradual lifting of restrictions on social gathering starting in the third quarter. During the second quarter we assume an 8.5% reduction in service-concept consumption relative to fundamentals, with a recovery beginning gradually in the third quarter but not completed until the fourth quarter of 2021 (chart, top).

Fiscal policy: The forecast assumes the recently enacted $2.3 trillion Coronavirus Aid, Relief and Economic Security (CARES) Act, including unprecedented unemployment benefits and "recovery rebates" to individuals. See Fiscal Policy.

Monetary policy: The Fed has lowered the federal funds rate to 0% - 0.25% and will keep it there until late 2025 when the economy is again beyond full employment with inflation poised to move persistently above the Fed's 2% objective. The Fed resurrected several credit facilities from 2008-09, and created new ones, to support the economy and ensure normal functioning of financial markets. We assume the facilities are fully utilized, prove effective in limiting the widening in credit spreads, and that the Fed quickly expands its holdings of term Treasuries by nearly $2 trillion, an aggressive return to "QE".

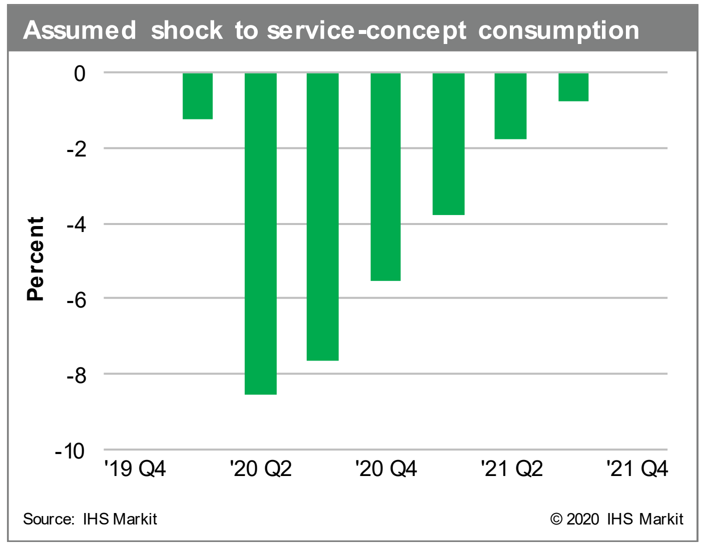
Trade: The forecast includes tariffs enacted by the US and China since 2017 and still in effect.

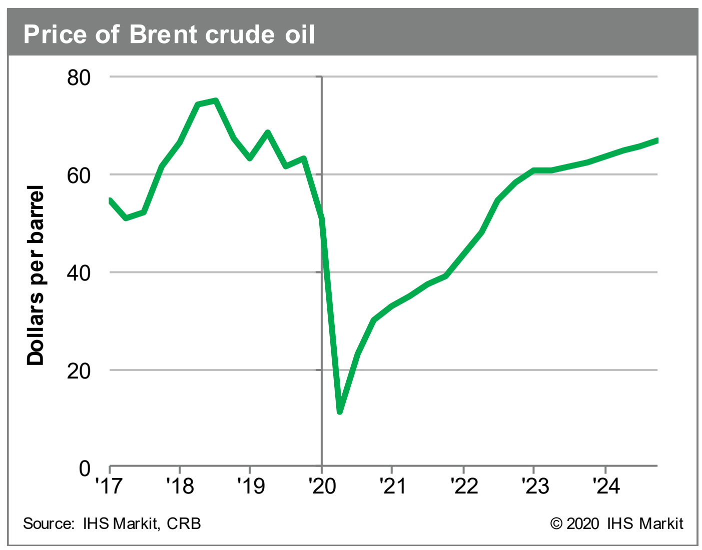
Global growth: Growth of real, trade-weighted foreign GDP contracts 2.7% (year/year) in 2020 before rebounding to 2.2% in 2021 as the COVID-19 pandemic recedes (chart, bottom). The trade-weighted foreign bond yield dips to 0.4% in 2020 before rising to 2.3% by 2027. Our projections of foreign growth remain under review and may be lowered to reflect larger effects from the pandemic than currently assumed.

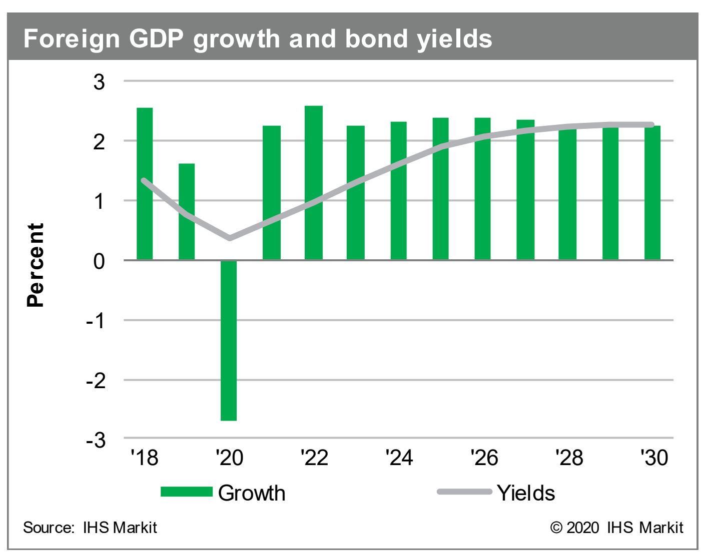
Oil prices: The price of Brent crude oil is projected to plunge to $11 per barrel in the second quarter as the combination of global recession and a price war between Saudi Arabia and Russia has created an unprecedented surplus of oil. The price does not regain $50 per barrel until mid-2022.

Demographics: Based on Census projections, growth of the working-age population slows from 0.9% in 2017 to 0.8% by 2022. The demographically driven component of the labor force participation rate declines 1.3 percentage points, to 61.9%, by the end of 2022. Household formations slip from 1.40 million in 2018 to 1.21 million in 2023.

Productivity: Growth of full-employment labor productivity, driven by an increase in growth of total factor productivity, rises from roughly 1.5% in 2019 to 1.8% by 2024.







Alternative scenarios

Two alternative outcomes for the US economy

Due to the rapidly changing risks and heightened uncertainty surrounding the spread of COVID-19 and its economic impact, we have altered our alternative scenario narratives this month. The probabilities associated with these alternative scenarios has changed as well. We assign a 45% probability for our baseline forecast, a 35% probability for the Pessimistic scenario, and a 20% probability for the Optimistic scenario.

COVID-19 causes an even larger, longer hit to production, employment and income (35% probability)

The pessimistic forecast assumes an even steeper contraction in consumer spending than in the baseline forecast and that it will take much longer than in the baseline to bring COVID-19 under control. This delays the start of the recovery in spending, reduces its vigor and delays laid-off workers getting back to work. The baseline incorporates a sudden dramatic contraction in the production of consumer services, such as travel, hotel, and restaurants. The contraction to demand and output in the pessimistic forecast is just much sharper. Owing to the sharper contraction in consumer spending in the pessimistic forecast, Annualized GDP growth drops to -50.2% and -24.7% in the second and third quarters, respectively, compared to -26.5% and -0.4% in the baseline. Peak to trough, real GDP declines 22.9%, compared to 8.3% in the baseline.

Business fixed investment, driven by the unprecedented collapse of output, contracts 63% and 66% at annual rates in the second and third quarters, respectively, compared with 30% and 20% in the baseline. It subsequently rebounds sharply, but 10 years out, is still 10% below the baseline. The forecast includes the fiscal stimulus included in the baseline.

The unemployment rate soars to 22.2% in the third quarter—not as painful as the 25% reached during The Great Depression—25%—but nearly so. Housing starts, which started the year strongly, reaching a 1.624 million unit (SAAR) cyclical peak in January, are forecasted to plunge in the second quarter, and bottom out in the third quarter at 580,000, rate compared to a floor of 925,000 in the baseline.

In principle, if storage reaches capacity across the world, oil prices could fall below zero. This nearly happens in the pessimistic case, as the average price of Brent crude oil plummets to $6.60 a barrel in the second quarter of 2020. It's price does rebound as domestic and foreign growth come back.

It takes years before the level of GDP approaches the baseline level. The unemployment rate drops below 5% in the third quarter of 2024, 10 quarters later than in the baseline.

Faster "V-shaped" recovery from COVID-19 recession (20% probability)

The key assumption behind this optimistic scenario is a less severe recession in the first half of 2020 followed by a quicker economic recovery. Underlying this economic assumption is the hypothetical scenario in which the spread of COVID-19 and its health ramifications become less threatening within a couple months. More specifically, this would mean that the number of deaths from COVID-19—and in turn, the number of new cases—peaks by mid-April and gradually diminishes toward zero by June. While not the most likely outcome in our estimation, this scenario has a nontrivial probability. Several epidemiological models support this timeline of events, under the assumption that guidelines for social distancing are properly observed.

Another potential catalyst for optimism on the healthcare front is the possibility that an effective treatment for the virus is discovered. While a vaccine would likely take years, doctors are reporting anecdotal success treating the virus with anti-malaria drugs and other medicines. Further convincing progress here, especially if it leads to reduced fatality rates, could be motivating factor leading to an earlier "re-opening" of the economy and rapid rebound in consumer spending.

In this scenario, the US economy suffers a two-quarter recession in the first half of 2020. Real GDP declines 4.1% peak-to-trough, compared to the 8.3% drop in the baseline. The unemployment rate spikes to 8.3% in the third quarter, before gradually easing to below 4% by 2023. Years of aggressive recession-fighting monetary policy allow core PCE inflation to run above-trend for a couple years and reach 2.3% by the end of 2023, prompting the first in a series of interest rate hikes. The Fed gradually raises the federal funds rate to its long-run equilibrium of 2.50-2.75% by 2028, two years earlier than in the baseline.

This scenario, while not explicitly including any additional fiscal stimulus on top of the CARES act, implies that fiscal and monetary measures are effective in mitigating the damage to corporate and household balance sheets, allowing for a relatively expedient recovery in private sector demand once the health concerns are alleviated.

US Macro Forecast Snapshot*

	Baseline (45%)	Pessimistic (35%)	Optimistic (20%)
GDP growth	GDP contracts 7.0% in 2020 with a 3-quarter recession starting in first quarter of 2020. Rebounds 10.1% in 2021 and 2.2% in 2022	GDP contracts 20.9% in 2020 with a 3-quarter recession starting in first quarter of 2020. Rebounds 17.3% in 2021 and 5.4% in 2022	GDP contracts 2.4% in 2020 with a 2-quarter recession starting in first quarter of 2020. Rebounds 6.4% in 2021 and 2.0% in 2022
Consumer spending	Spending falls t.8% in 2020 before bouncing back rapidly 9.4% in 2021 and 1.5% in 2022	Spending falls 21.1% in 2020 before bouncing back a solid 16.7% in 2021 and 5.2% in 2022	Falls 1.1% in 2020 and rises 5.2% in 2021 and 1.3% in 2022
Business fixed investment	Falls 14.7% in 2020 then rebounds 14.6% in 2021 and 4.2% in 2022	Plummets 43.7% in 2020 then jumps 33.1% in 2021 and 13.1% in 2022	Falls 5.0% in 2020 then jumps 9.2% in 2021 and 4.4% in 2022
Housing	Housing starts fall from 1.30 million in 2019 to 1.08 million in 2020 and edge up to 1.12 million in 2021	Housing starts fall from 1.30 million in 2019 to 1.00 million in 2020 and 0.75 million in 2021	Housing starts fall from 1.30 million on average in 2019 to 1.21 million in 2020 and rise to 1.29 million in 2021
Exports	Fall 4.5% in 2020 before rising 10.1% in 2021	Fall 4.8% in 2020 before rising 9.7% in 2021	Fall 3.2% in 2020 before rising 9.8% in 2021
Fiscal policy	Coronavirus Aid, Relief, and Economic Security (CARES) Act	Same assumptions as in baseline	Same assumptions as in baseline
Monetary policy	Fed keeps the federal funds rate at the zero bound till the first quarter of 2026, aggressive “quantitative easing” and liquidity enhancement measures	Fed keeps the federal funds rate at the zero bound till the first quarter of 2026, aggressive “quantitative easing” and liquidity enhancement measures	Fed keeps the federal funds rate at the zero bound till the first quarter of 2024, aggressive “quantitative easing” and liquidity enhancement measures
Credit conditions	Initial tightening, then gradual easing	Initial tightening, then gradual easing	Initial tightening, then gradual easing
Productivity growth	Averages 1.0% from 2020 through 2023	Averages 0.2% during 2020–23, 0.8 percentage points below the baseline	Averages 1.3% during 2020–23, 0.3 percentage points above the baseline
Consumer confidence	Declines sharply in the second quarter of 2020 before recovering starting in the fourth quarter and peaking in the second quarter of 2025	Remains below the baseline over the entire forecast interval	Outperforms baseline over the entire forecast interval
Oil prices (Dollars/ barrel)	Brent crude oil averages $29 in 2020 and $36 in 2021	Brent crude oil averages $18 in 2020 and $36 in 2021	Brent crude oil averages $29 in 2020 and $45 in 2021
Stock markets	The S&P 500 falls 8.5% over 2020 (Dec. to Dec.) and rises 21.1% in 2021 (Dec. to Dec.)	The S&P 500 falls 19.8% over 2020 (Dec. to Dec.) and rises 21.1% in 2021 (Dec. to Dec.)	The S&P 500 falls 2.4% in 2020 (Dec. to Dec.) and rises 24.1% in 2021 (Dec. to Dec.)
Inflation (PCE)	Core personal consumption (PCE) price inflation is 1.3% in 2020, 1.4% in 2021 and 1.8% in 2022	Core personal consumption (PCE) price inflation is 0.6% in 2020 and 2021 and 0.7% in 2022	Core personal consumption (PCE) price inflation is 1.7% in 2020, 2.1% in 2021 and 2.0% in 2022
Foreign growth	In 2020, Eurozone GDP drops 1.5%, while China's growth slows to 3.9%	Global economy suffers a more severe recession	Global economy experiences a recession that is less severe than in the baseline.
US dollar	The real dollar appreciates from 2020 Q1 through 2021 Q1 before depreciating through 2026 Q1	Depreciates in the first three quarters of 2020 before rising above the baseline in 2022 Q1	Appreciates through 2020 Q4 before depreciating through 2026 Q1. Moves above the baseline in 2024 Q2.

*Annual percent changes are fourth-quarter over fourth-quarter

Alternative Scenarios of the US Economy

	Annual rates					Annual averages					Q4/Q4				
	2019:4	**2020:1**	**2020:2**	**2020:3**	**2020:4**	**2019**	**2020**	**2021**	**2022**	**2023**	**2019**	**2020**	**2021**	**2022**	**2023**
Pessimistic: Larger, longer hit to production, employment, and income (Prob. = 35%)															
Composition of Real GDP, Percent Change															
Gross Domestic Product	2.1	-5.5	-50.3	-24.3	11.2	2.3	-14.9	6.0	6.8	4.6	2.3	-20.7	17.1	5.4	3.0
Total Consumption	1.8	-7.9	-60.4	-19.5	32.1	2.6	-17.1	8.4	7.1	3.9	2.7	-21.1	16.7	5.2	2.9
Nonresidential Fixed Investment	-2.4	-9.7	-63.6	-66.3	-10.4	2.1	-28.8	-3.5	15.5	11.8	-0.4	-43.9	32.5	13.2	8.6
Residential Fixed Investment	6.5	14.2	-55.3	-29.8	-28.1	-1.5	-14.6	-14.8	19.9	6.4	1.7	-28.8	10.1	12.2	6.7
Exports	2.1	-3.1	-15.7	-4.1	4.6	0.0	-4.0	5.7	4.1	3.3	0.3	-4.8	9.7	1.6	4.3
Imports	-8.4	-11.0	-49.8	-65.5	-6.7	1.0	-25.3	14.5	17.5	-0.7	-2.1	-38.4	61.3	0.5	2.2
Federal Government	3.4	1.4	6.2	2.0	1.4	3.5	3.4	1.7	0.3	-1.5	4.3	2.7	1.1	-0.2	-1.9
State & Local Government	2.0	2.0	-4.4	3.0	3.4	1.6	0.9	2.3	1.2	1.0	2.2	1.0	2.3	0.9	1.0
Prices & Wages, Percent Change															
Consumer Prices	2.4	0.4	-7.3	0.3	1.4	1.8	-0.3	1.5	2.8	2.0	2.0	-1.4	3.0	2.1	2.2
Producer Prices, Finished Goods	3.3	-3.4	-13.5	-2.0	9.2	0.8	-2.5	6.0	4.1	2.1	1.0	-2.8	7.9	2.6	2.2
Employment Cost Index - Total Comp.	2.6	2.6	-4.7	-9.9	-7.2	2.7	-1.0	-4.6	-1.0	-0.1	2.7	-4.9	-2.2	-0.7	0.3
Other Key Measures, Percent Change															
Productivity	1.2	-7.6	-8.7	25.2	2.7	1.9	-0.3	7.1	-5.5	0.4	1.8	2.0	0.6	-1.6	-0.4
Total Industrial Production	0.2	-8.6	-53.0	-45.2	-19.7	0.9	-21.4	0.9	10.3	7.4	-0.7	-34.0	27.8	7.5	4.8
Incomes, Percent Change															
Personal Income	3.1	3.1	-26.4	-18.3	-6.0	4.4	-6.3	1.9	6.5	5.2	4.1	-12.6	11.9	4.3	5.4
After-Tax Profits (Four-qtr.% change)	4.1	-12.5	-55.5	-54.0	-41.9	0.3	-41.2	59.7	4.5	7.2	4.1	-41.9	66.6	4.2	-1.2
	Levels					Annual averages					Q4 values				
Other Key Measures															
Brent Crude, Spot Price ($/bbl)	63.38	45.65	6.58	7.93	13.44	64.34	18.40	36.30	65.52	83.27	63.38	13.44	49.45	73.30	88.33
Nonfarm Inven. Chg. (Bil.2012 $)	19.0	-28.7	-55.6	-679.9	-1007.5	75.3	-442.9	-84.4	198.4	187.0	19.0	-1007.5	241.1	205.9	138.5
Consumer Sentiment Index	97.2	96.6	70.5	54.9	51.5	96.0	68.4	62.8	73.9	82.6	97.2	51.5	69.7	77.7	85.9
Light Vehicle Sales (Mil. units, saar)	16.73	14.78	4.69	5.72	8.57	16.89	8.44	14.19	16.13	17.06	16.73	8.57	14.79	16.88	16.81
Housing Starts (Mil. units, saar)	1.441	1.443	1.071	0.822	0.666	1.298	1.000	0.751	1.079	1.220	1.441	0.666	0.942	1.106	1.271
Unemployment Rate (%)	3.5	3.7	15.8	22.2	20.4	3.7	15.5	15.3	8.4	5.9	3.5	20.4	11.3	7.2	5.4
Federal Surplus (Unified, FY, bil. $)	-356.6	-433.1	-554.6	-864.5	-816.1	-984.4	-2208.9	-2688.7	-1920.5	-1446.6	-356.6	-816.1	-598.9	-406.1	-391.0
Financial Markets, NSA, Quarter Average															
Federal Funds Rate (%)	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	1.64	0.11	0.13	0.13	0.13
10-Year Treasury Note Yield (%)	1.79	1.56	0.60	0.35	0.42	2.14	0.73	0.65	0.96	1.37	1.79	0.42	0.75	1.12	1.53
	Annual rates					Annual averages					Q4/Q4				
Optimistic: Faster "V-shaped" recovery from COVID-19 recession (Prob. = 20%)															
Composition of Real GDP, Percent Change															
Gross Domestic Product	2.1	-1.7	-13.9	1.9	5.2	2.3	-1.9	5.0	2.9	1.6	2.3	-2.4	6.4	2.0	1.4
Total Consumption	1.8	-2.2	-15.6	7.7	7.9	2.6	-1.3	5.0	2.4	1.1	2.7	-1.0	5.2	1.3	1.2
Nonresidential Fixed Investment	-2.4	-4.4	-9.0	-9.5	3.6	2.1	-4.6	5.2	5.3	4.5	-0.4	-5.0	9.2	4.4	4.3
Residential Fixed Investment	6.5	17.3	-54.1	-13.1	1.3	-1.5	-9.7	3.0	6.2	0.0	1.7	-17.0	16.1	1.2	-0.5
Exports	2.1	-4.8	-15.8	1.7	7.9	0.0	-3.6	8.0	4.7	4.3	0.3	-3.2	9.8	4.1	4.1
Imports	-8.4	-6.8	-17.9	-9.2	11.6	1.0	-7.1	9.6	4.3	-0.2	-2.1	-6.2	14.9	-0.7	1.0
Federal Government	3.4	1.4	6.9	1.6	-0.2	3.5	3.4	0.5	-0.5	-2.1	4.3	2.4	-0.2	-0.9	-2.5
State & Local Government	2.0	1.7	-3.0	2.0	1.6	1.6	0.8	1.4	0.9	0.7	2.2	0.6	1.5	0.7	0.6
Prices & Wages, Percent Change															
Consumer Prices	2.4	1.7	-6.1	4.1	4.4	1.8	0.9	3.1	3.0	2.9	2.0	0.9	3.4	2.8	3.0
Producer Prices, Finished Goods	3.3	-1.9	-11.7	11.4	12.6	0.8	0.1	5.9	3.1	2.9	1.0	2.1	4.3	2.8	3.0
Employment Cost Index - Total Comp.	2.6	2.8	1.4	-0.3	0.4	2.7	2.0	1.2	2.4	3.2	2.7	1.1	1.9	2.7	3.4
Other Key Measures, Percent Change															
Productivity	1.2	-4.8	0.0	14.8	3.7	1.9	1.1	5.7	-0.9	-0.6	1.8	3.2	3.3	-1.4	0.0
Total Industrial Production	0.2	-5.9	-26.1	-13.4	-4.7	0.9	-8.7	0.2	3.4	2.0	-0.7	-13.0	7.2	2.2	1.7
Payroll Employment	1.7	2.6	-14.1	-10.2	0.1	1.4	-2.9	-0.8	3.6	2.5	1.4	-5.6	2.9	3.5	1.8
Incomes, Percent Change															
Personal Income	3.1	5.3	7.8	4.3	-3.0	4.4	4.3	3.6	3.7	4.0	4.1	3.5	4.7	3.5	4.1
After-Tax Profits (Four-qtr.% change)	4.1	-7.4	-25.3	-7.7	0.5	0.3	-10.0	38.4	0.7	1.6	4.1	0.5	23.6	-2.2	2.5
	Levels					Annual averages					Q4 values				
Other Key Measures															
Brent Crude, Spot Price ($/bbl)	63.38	50.89	11.33	23.00	32.00	64.34	29.30	44.50	57.50	69.25	63.38	32.00	50.00	62.00	73.00
Nonfarm Inven. Chg. (Bil. 2012 $)	19.0	-29.1	-47.5	-219.5	-235.8	75.3	-133.0	64.5	140.1	105.9	19.0	-235.8	156.2	128.2	90.2
Consumer Sentiment Index	97.2	98.7	72.0	70.1	75.2	96.0	79.0	88.9	92.7	94.7	97.2	75.2	91.4	93.4	95.5
Light Vehicle Sales (Mil. units, saar)	16.73	15.66	13.35	17.27	16.22	16.89	15.62	16.05	16.76	16.78	16.73	16.22	16.14	16.90	16.67
Housing Starts (Mil. units, saar)	1.441	1.459	1.107	1.097	1.172	1.298	1.209	1.243	1.294	1.300	1.441	1.172	1.269	1.303	1.292
Unemployment Rate (%)	3.5	3.4	7.2	8.3	7.9	3.7	6.7	6.7	4.5	3.4	3.5	7.9	5.8	3.9	3.3
Federal Surplus (Unified, FY, bil. $)	-356.6	-421.6	-423.3	-672.0	-619.3	-984.4	-1873.6	-1993.2	-1402.0	-1029.8	-356.6	-619.3	-458.4	-293.7	-292.8
Financial Markets, NSA, Quarter Average															
Federal Funds Rate (%)	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	1.64	0.11	0.13	0.13	0.16
10-Year Treasury Note Yield (%)	1.79	1.56	0.81	0.85	0.93	2.14	1.04	1.20	1.60	2.00	1.79	0.93	1.35	1.75	2.15

Source: IHS Markit

A Deeper Dive

Labor markets

Labor market collapses as COVID-19 response includes mandated closures

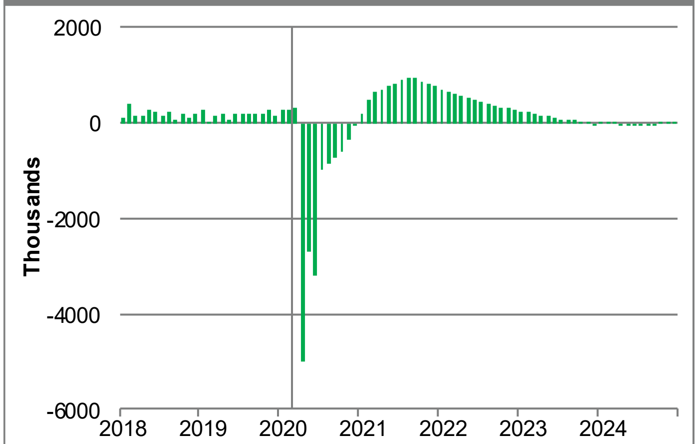
Ten years of growth in nonfarm payroll employment came to a sudden stop in March, with employment declines expected to number in the millions the next few months. This is an eyepopping shift from last month's "pre-COVID-19" forecast which had projected average monthly gains of 85 thousand over 2020. We expect the unemployment rate to leap to 10.3% by the fourth quarter of 2020. Discouraged-worker effects will push the participation rate from an average of 63.2% in the first quarter of 2020 to 62.0% by the second quarter of 2021.

The leading edge of the COVID-19 related fallout in labor markets was evident in the March Employment Situation report (ESR), as nonfarm payrolls shed 701 thousand jobs. Due to the timing of the establishment survey for the ESR, the bulk of the layoffs which took place in the second half of March were not captured in the report. As a result, we expect the April ESR to be significantly worse, with an unprecedented monthly loss of approximately 5 million jobs, and there is high probability that it will be substantially worse. Several industries exhibited weakness in March, but restaurants were hit particularly hard. A huge decline in employment at food services and drinking places accounted for about 60% of the overall decline. Other industries that exhibited large declines in employment were healthcare and social assistance (61 thousand), professional and business services (52 thousand), retail trade (46 thousand) and construction (29 thousand).

In our forecast, we project 7.6 million jobs will be lost in the second quarter followed by a loss of 4.8 million and 1.6 million jobs in the third quarter and fourth quarter, respectively. Although these projections are quite alarming, we view them as having significant downside risk due to the now widespread adoption of shelter in place orders and more stringent social distancing measures. In the same vein, there is significant upside risk to our forecast of the unemployment rate peaking at 10.3% in the fourth quarter of 2020. Recent data on initial claims for unemployment insurance points to a larger and quicker deterioration in the labor market than is present in this forecast and would result in a higher peak in the unemployment rate that arrives earlier in the year.

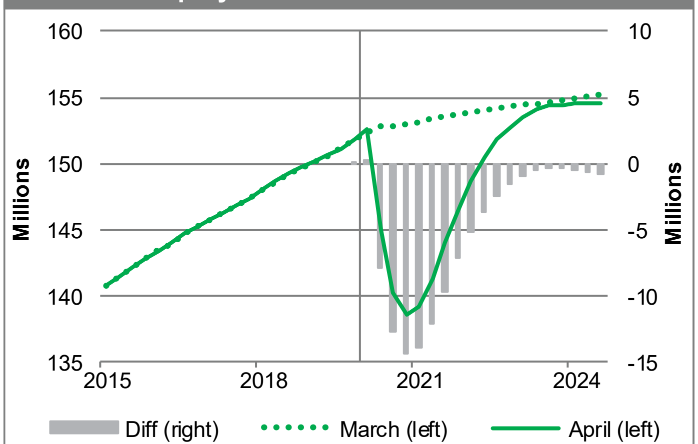
Initial claims have skyrocketed as of late, with a cumulative total of nearly 10 million claims filed over the last two weeks. For the week ending on 28 March 6.6 million initial claims were filed, almost 10 times the pre-COVID-19 record high of 695,000 from October 1982. Many claims were processed for individuals who were previously unable to file due to website outages and long wait times over the phone, therefore this record did not come as a total surprise. Anecdotal evidence suggests that states continue to struggle processing the high volume of incoming claims.

Monthly employment gains



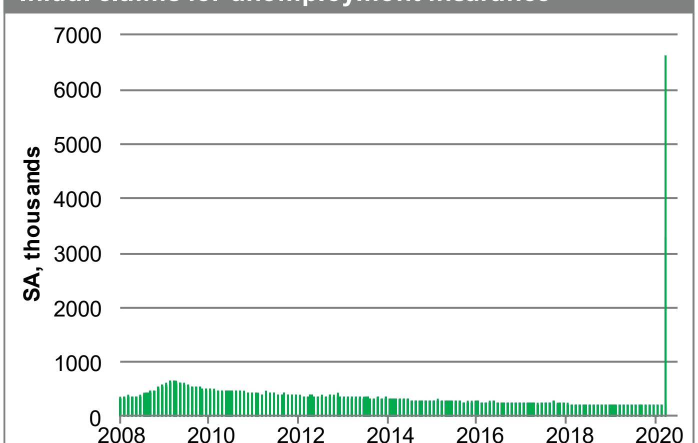
Source: IHS Markit, BLS © 2020 IHS Markit

Nonfarm employment in recent forecasts



Source: IHS Markit © 2020 IHS Markit

Initial claims for unemployment insurance



Source: IHS Markit, BLS © 2020 IHS Markit

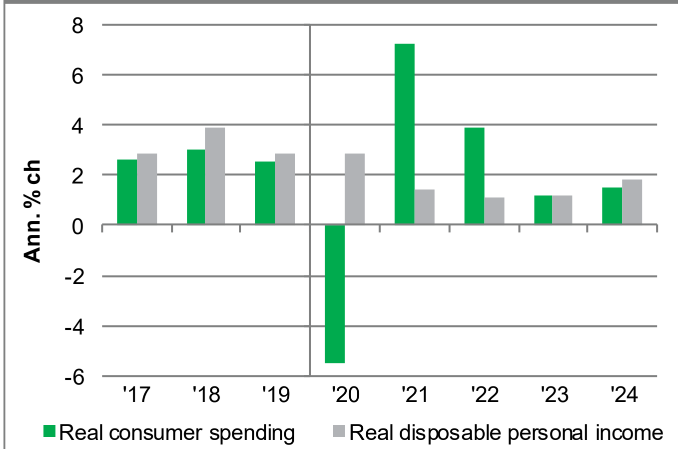
Income & wealth

Personal income's drop cushioned by stimulus measures; household net worth slammed, but will recover

According to the BEA's third estimate, real disposable personal income (DPI) grew at a 1.6% annual rate in the fourth quarter of 2019, and we estimate that real DPI growth was 2.7% in the first quarter of 2020. The urgent question is what happens next. With businesses shut down across the country due to COVID-19 and discretionary services spending all but frozen, consumer spending will lead the economic declines we expect to see through the third quarter, triggering closures and bankruptcies. However, between federal stimulus measures and efforts by businesses to stay connected to employees, personal income is expected to be relatively insulated. The Coronavirus Aid, Relief, and Economic Security (CARES) Act, signed into law on 27 March, includes an estimated $292 billion in direct payments ("recovery rebates") of $1,200 to most adults and an additional $500 for each child under 17. It also includes extensions of unemployment benefits amounting to about $260 billion (see Fiscal Policy). We expect these stimulus measures to boost real DPI growth from an estimated annualized decline of 6.5% in the second quarter to a 9.9% increase. The personal saving rate is forecast to vault to an unprecedented 19.3%. This forecast calls for real DPI growth of 1.6% in 2020 (fourth quarter over fourth quarter), 3.0% in 2021, and 0.4% in 2022.

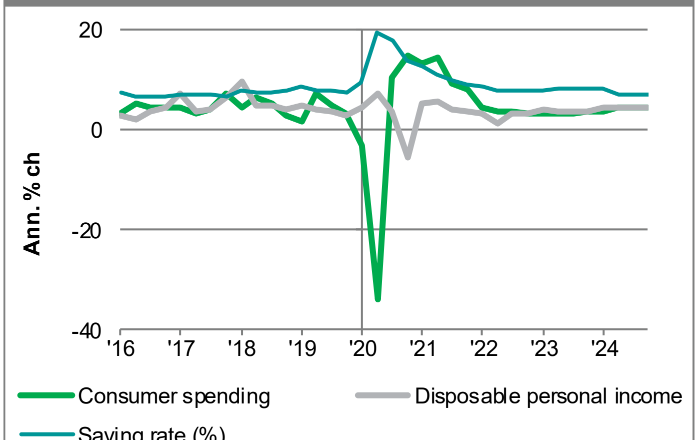
Financial markets were bloodied in March and the S&P500 Index fell 12.5% on top of an 8.4% decline in February (see Equities). Household equity net worth has thus been undercut, with negative implications for consumer spending; we estimate that household equity net worth will fall 21.2% between the fourth quarter of 2020 and the second quarter of this year. However, we expect monetary stimulus and asset purchases by the Federal Reserve to lead to an outsized boost to the stock market, which is expected to recover briskly in 2021. Our forecast is for household equity net worth to grow 22.0% in 2021.

Real consumption tanks now but income dips later



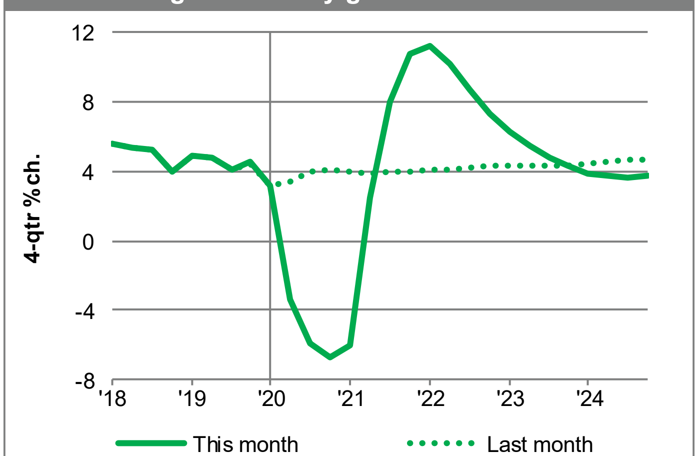
Source: IHS Markit, BEA © 2020 IHS Markit

Saving rate spikes as consumption plunges



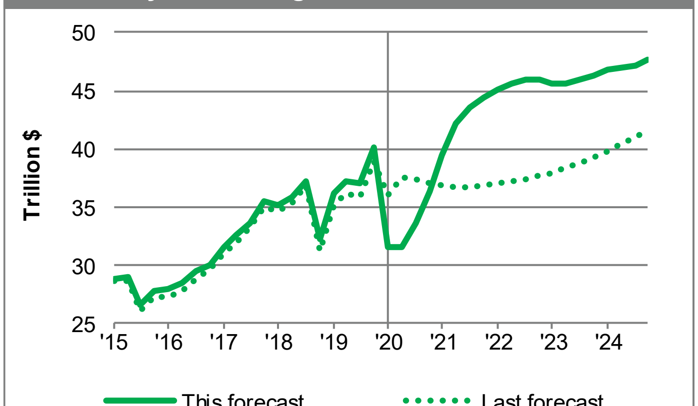
Source: IHS Markit, BEA © 2020 IHS Markit

Nominal wage and salary growth



Source: IHS Markit, BEA © 2020 IHS Markit

Equity net worth takes a dive now but recovery is boosted by Fed easing and lower interest rates



Source: IHS Markit, Federal Reserve © 2020 IHS Markit

Consumption

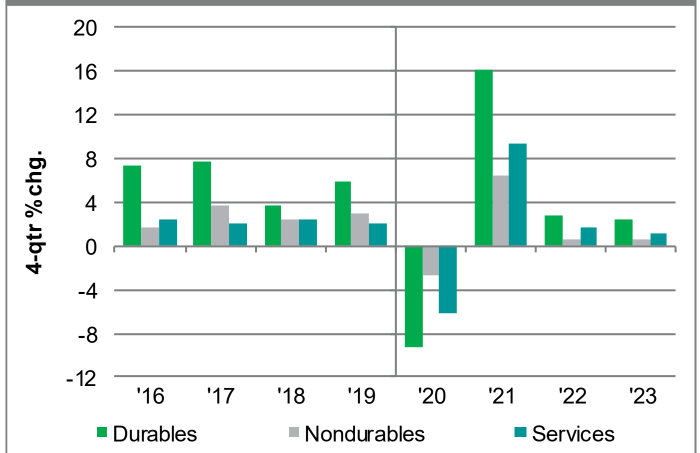
Consumer spending stopped in its tracks by COVID-19

According to the BEA's third estimate, real personal consumption expenditures (PCE) growth slowed to 1.8% (annual rate) in the fourth quarter. For the year, PCE growth registered 2.7% in 2019 (fourth quarter on fourth quarter). Real PCE rose 0.1% in both January and February, but a presumed massive decline in March will result in the first negative quarter in more than 10 years. We look for a 4.7% annualized contraction in real PCE in the first quarter and a 32.2% drop in the second.

Consumer spending has been stopped in its tracks by the spread of COVID-19. Nearly all outlets for discretionary consumer services spending have been shuttered due to government orders and voluntary social distancing. These measures are forcing closures of most non-essential retail stores as well. In addition to the direct hit to spending, the knock-on effects of this consumer-led recession will hammer household balance sheets. A dive in equity prices has eroded household wealth; the decline in the S&P 500 exceeded 20% cumulatively in February and March. This precedes what are expected to be rapidly deteriorating consumer fundamentals. In our base case, unemployment is expected to surge above 10% this year but it could easily be double that in a downside scenario. Credit delinquencies and bankruptcies are likely to follow.

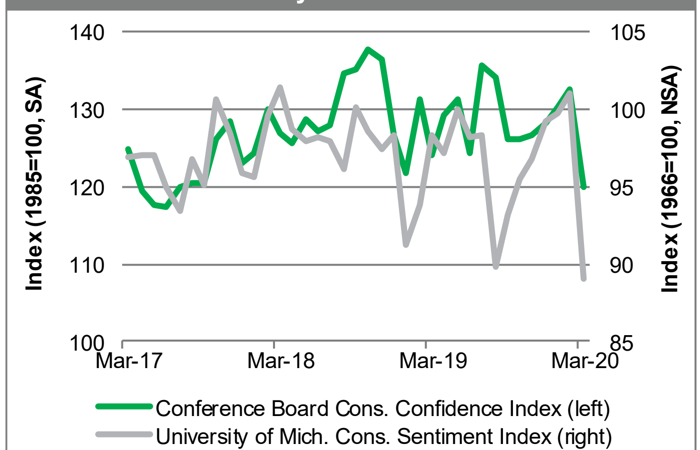
Although the outlook is bleak, the silver lining is that consumers entered this episode with high levels of confidence, low debt burdens and elevated saving rates. This will help facilitate a recovery, but only after consumers feel confident that the virus has been contained or can be managed through medical treatment. We expect a gradual recovery in spending to begin in the third quarter, but from an extremely depressed level. Real PCE is forecast to decline 5.8% (fourth quarter over fourth quarter) in 2020 followed by an increase of 9.4% in 2021.

Drag on real PCE not confined to services



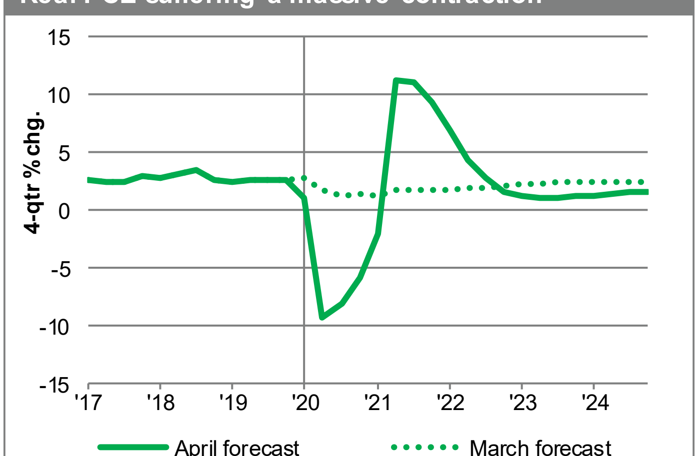
Source: IHS Markit, BEA © 2020 IHS Markit

Consumer mood likely to sour further



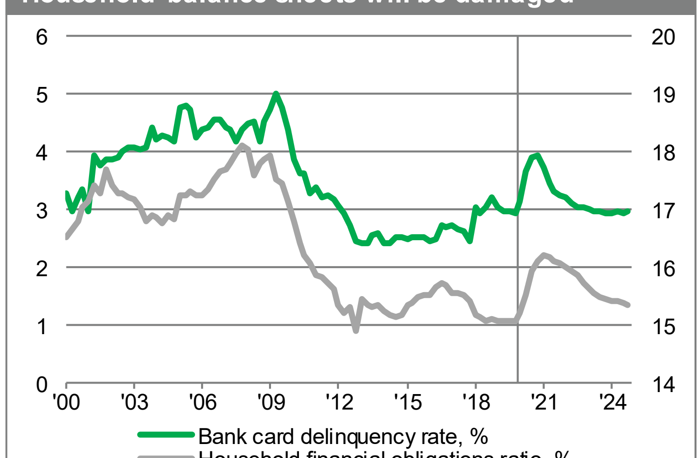
Source: IHS Markit, Conference Board, University of Michigan © 2020 IHS Markit

Real PCE suffering a massive contraction



Source: IHS Markit, BEA © 2020 IHS Markit

Household balance sheets will be damaged



Source: IHS Markit, BEA © 2020 IHS Markit

Inventory investment

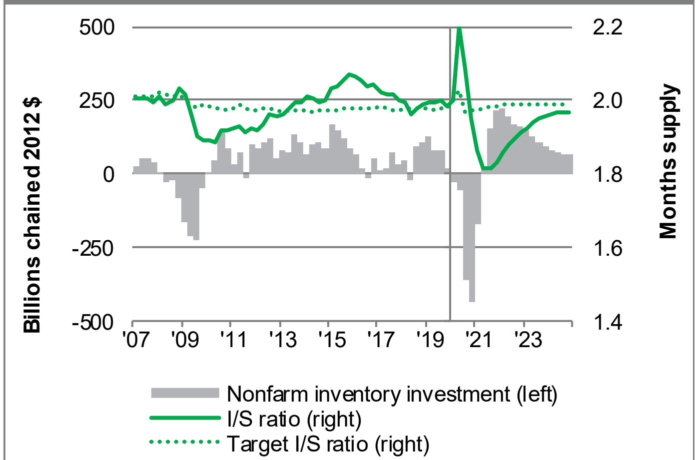
Inventories to decline sharply this year, as is typical in recessions

We estimate that real nonfarm inventories declined at a $29 billion annual rate over the three months of the first quarter, and we forecast much steeper declines over coming quarters. While the sharpest contraction in GDP in our forecast is in the second quarter, the largest subtraction from inventory investment is in the third quarter, when falling inventory investment subtracts 5.8 percentage points from growth. A similar pattern held in the Great Recession, when the largest subtraction from inventory investment trailed the steepest decline in GDP by one quarter. By calendar year, following a contribution to fourth-quarter-over-fourth-quarter GDP growth of -0.4 percentage point last year, we forecast a 2.1 percentage-point subtraction this year followed by a rebound next year that adds 3.3 percentage points to growth. Inventory investment will remain elevated for some time as business rebuild stocks to bring them in line with optimal levels given recovering sales.

Turning to the manufacturing sector, inventories last year were being pushed higher by the continued production of Boeing's 737 MAX line of aircraft, even as deliveries were halted. Boeing suspended production of their 737 line of aircraft in mid-January, cutting off this source of upward pressure on manufacturing inventories. Going forward, a broad cut in manufacturing activity will put manufacturing inventories on a downward track in coming months.

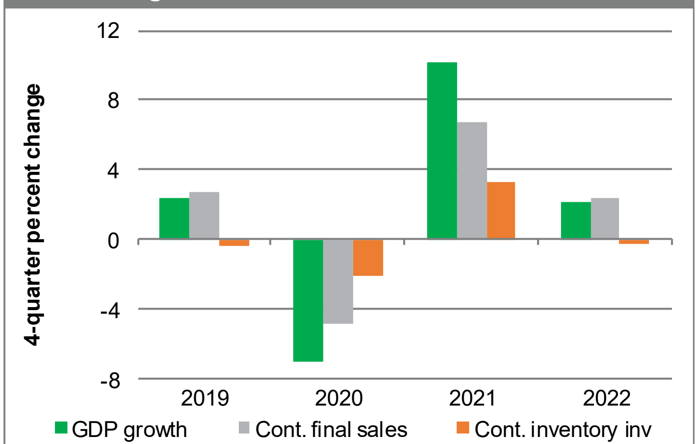
In the auto sector, a sharp decline in sales in March led to a spike in days supply that will be reversed in coming months as production is cut and sales recover. The spike in days supply is evident (in our forecast) as a temporary jump in the nonfarm inventory to sales ratio. This quickly reverses in our forecast, driven by the drop in inventory investment noted above.

Nonfarm I/S ratio & inventory investment



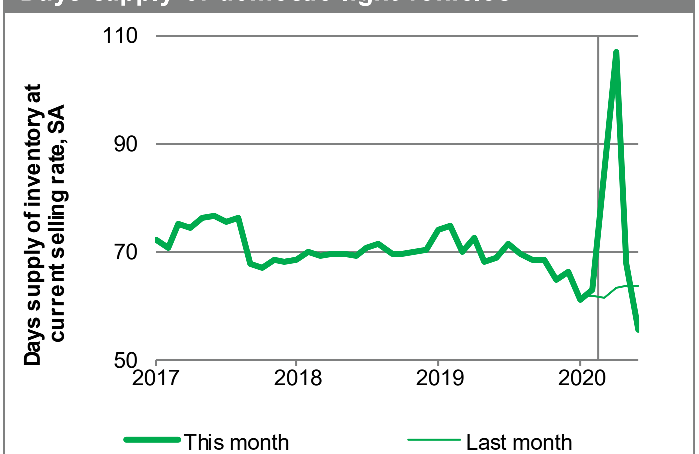
Source: IHS Markit, BEA © 2020 IHS Markit

Real GDP growth and contributions



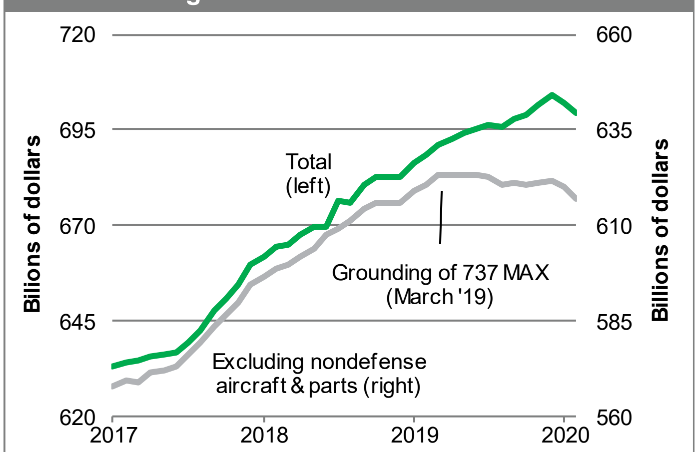
Source: IHS Markit © 2020 IHS Markit

Days supply of domestic light vehicles



Source: IHS Markit, BEA, Wards © 2020 IHS Markit

Manufacturing inventories



Source: IHS Markit, Census © 2020 IHS Markit

Business fixed investment

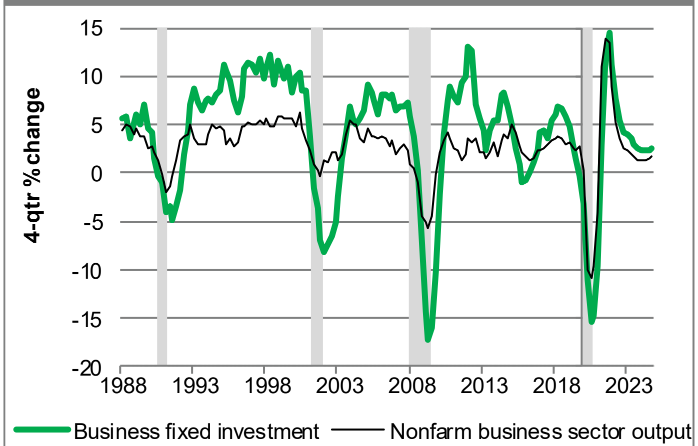
Businesses to put investment plans on hold as recession looms

Nonresidential fixed investment is expected to decline 14.7% this year (fourth quarter over fourth quarter) followed by recovery next year (a 14.6% increase) and moderate growth thereafter. The weakness this year, of course, is due to (and contributes to) the recession. The 14.7% decline is, in fact, the low point for the four-quarter percent change in this cycle and is not quite as severe as the low point of -17.1% during the Great Recession, even though the decline in aggregate output that we expect in this recession is much larger than the decline in output during the Great Recession. This reflects the fact that the current recession is a consumer-led recession, and the declines in investment spending are, to a large extent, induced. The Great Recession was a financial crisis that struck directly at residential and nonresidential investment, so investment spending in the Great recession had both a direct and an induced component, making the decline relatively large.

An exception to this "induced investment narrative" is investment in mining structures, which is expected to fall sharply due to recent sharp declines in oil prices. While these price declines can be ultimately tied back to COVID-19 — reduced demand from China led to price declines that were exacerbated by a lack of cooperation between OPEC countries and Russia — we do not think of them as induced declines. Over the four quarters of this year, we expect business fixed investment in structures, of which mining structures is a part, to decline 23.6%.

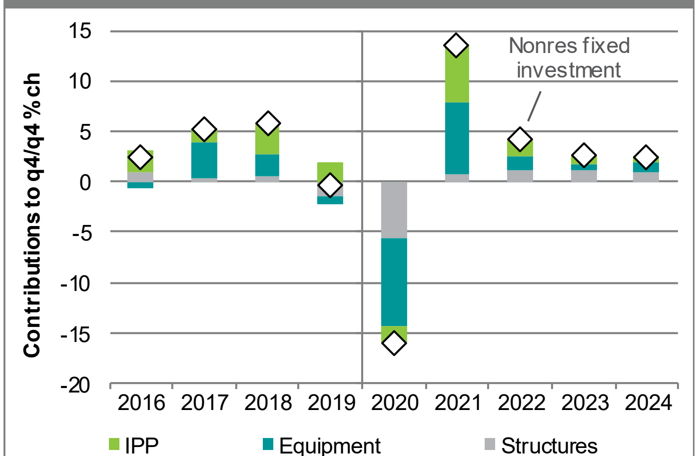
Equipment spending is forecast to decline 19.4% this year before rebounding next year (19.0% growth) and posting moderate growth thereafter. Investment in intellectual property products, a component of investment spending that is typically not as cyclical, declines 3.9% this year and rebounds sharply next year.

Nonresidential fixed investment & business output



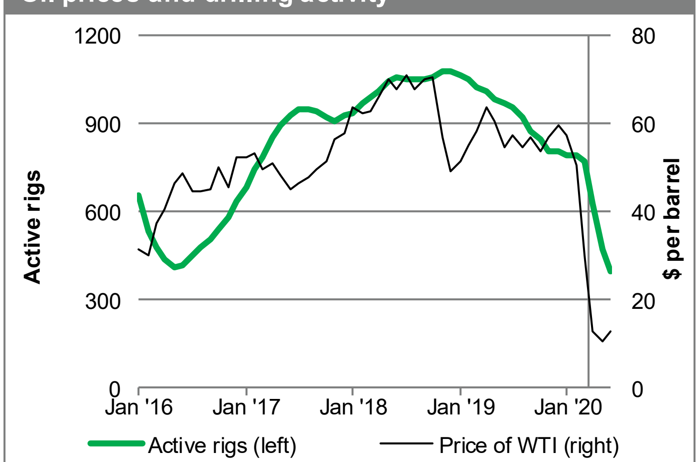
Source: IHS Markit, BEA © 2020 IHS Markit

Growth of nonresidential fixed investment



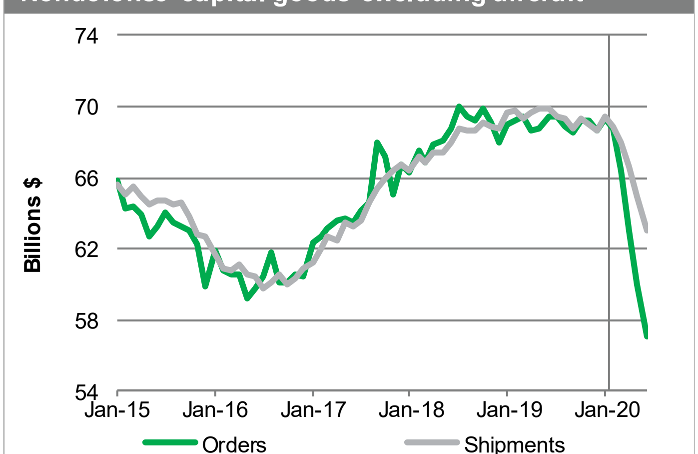
Source: IHS Markit, BEA © 2020 IHS Markit

Oil prices and drilling activity



Source: IHS Markit, Baker-Hughes © 2020 IHS Markit

Nondefense capital goods excluding aircraft



Source: IHS Markit © 2020 IHS Markit

Housing

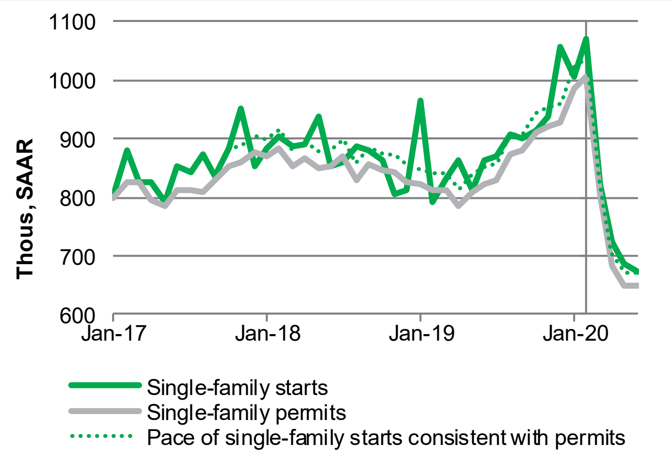
Starts and sales were at 13-year highs—then COVID-19 struck

The key housing data are monthly and published with a lag. The early impact of the COVID-19 on housing will start showing up in reports coming out later this month. Companies such as Zillow and Redfin, however, which price homes and make cash offers using algorithms, can track transactions in some markets daily. The picture they are reporting is grim. Home de-listings are rising across the country at all price points because sellers are either worried about their jobs or about having strangers walk through their houses; sellers are also lowering asking prices, video chats are replacing showings, and pending sales are falling as buyers back out of deals. Coming into March, the housing market was as strong as it had been in years--home sales reached 13-year highs in February, while housing starts also reached a 13-year high in January. In the last two weeks, 8.744 million Americans (not seasonally adjusted) have filed for unemployment benefits — approximately 5.3% of the entire civilian labor force. It only promises to get worse with roughly 14 million or more expected to lose their jobs before this is over. In that pool are people who just six weeks ago were in the process of buying, selling or building a home. This all translates into brutal housing reports in the months ahead.

It is impossible to sugarcoat this forecast. Housing starts reached a 1.624 million unit (SAAR) cyclical peak in January. They are forecasted to plunge in the second quarter, and bottom in the third quarter at a 925,000 rate (SAAR). The recovery is a steady one, with starts reaching a 1.25 million rate in the first half of 2022. The single-family category fares better than the multifamily category. Its recovery is V shaped, and it overshoots its trend level in 2021-2024. The multifamily recovery drags on into 2024. Housing starts are expected to total 1.077 million in 2020 (previously, in the March baseline, 1.424 million), 1.121 million in 2021 (previously 1.352 million), and 1.259 million in 2022 (previously 1.306 million).

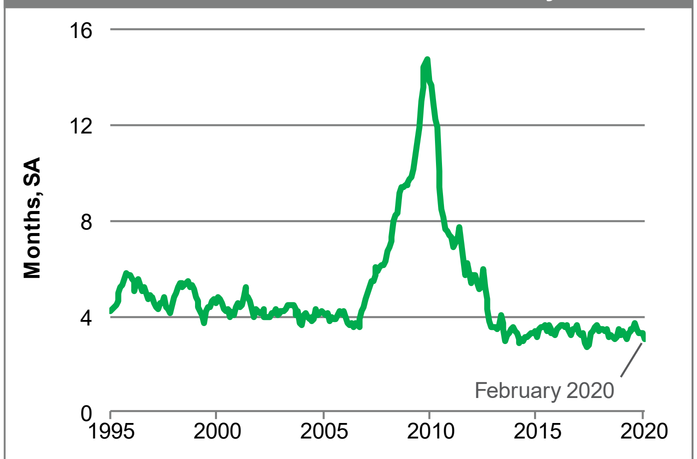
Home sales, the sum of new and existing home sales, reached a 13-year high of 6.535 million (SAAR) in February. They are expected to plunge to a 4.48 million rate in the second quarter and then bounce back to previously forecasted levels by 2022. Home prices are not expected to take as dramatic a hit as sales and starts, since entering March, inventories of homes for sale were as tight as they have been in decades. We expect home prices, as gauged by the FHFA house price purchase index, to slow to below 2% in 2021, before slowly edging up over the years to just below 3%.

Single-family starts and permits



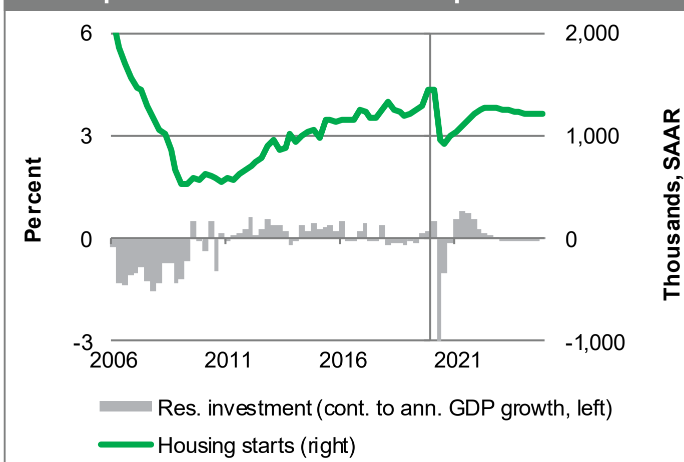
Source: IHS Markit, Census Bureau © 2020 IHS Markit

Median months on market for new 1-family homes



Source: IHS Markit, Census Bureau © 2020 IHS Markit

Starts plummet from COVID-19 impact



Source: IHS Markit, Census, BEA © 2020 IHS Markit

Trade

Net exports provide partial offset in an otherwise weak economy as imports are hit harder than exports

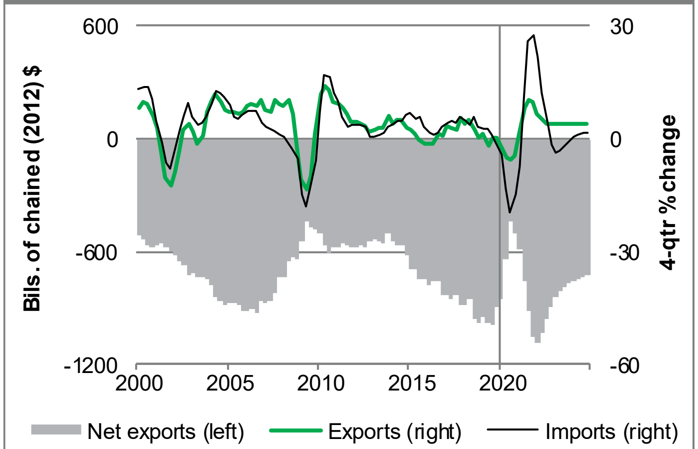
In this month's forecast, we expect disruptions related to COVID-19 to result in sharp declines in exports and especially imports, with the balance implying higher net exports over the first three quarters of this year. Over that time, net exports add an average of 2.4 percentage points to GDP growth, providing a partial offset during the recession. By the fourth quarter of 2020, net exports are again a drag on GDP growth as the recovery in imports outpaces exports, subtracting an average of 1.6 percentage points from GDP growth through early 2022. As growth of exports and imports moderates following the recovery, a declining dollar supports stronger growth of exports relative to imports, resulting in net exports returning to a positive for GDP growth through the end of 2024.

The nominal broad trade-weighted dollar ended last year at 114.7, the lowest level since July 2019. Since then, the dollar has appreciated sharply, and especially since the time of last month's forecast, reaching a recent high of 126.5 on 23 March. We look for the broad nominal dollar to remain elevated near a level of 125.5 through early next year, before declining over the remainder of the short-term forecast, easing a total of 12.3% through the end of 2024. Relative to last month, the nominal broad dollar is materially higher over the first two years of the forecast. By the second half of 2022, however, the dollar is expected to be much lower than last month, consistent with the downward revision to US interest rates relative to foreign rates, reflecting new US monetary policy assumptions.

The sharp appreciation in the dollar early in this month's forecast, combined with a hit to foreign growth, contributes to a downturn in exports. We estimate exports declined at a 5.1% annual rate in the first quarter and will decline at a 17.3% annual rate in the second quarter. Growth of exports is expected to firm to a 3.0% annual rate over the second half of this year, helped by the resumption of Boeing exports of 737 MAX aircraft. Meanwhile, sharp declines in domestic demand put downward pressure on growth of imports. We estimate imports declined at an 8.9% annual rate in the first quarter and look for further, larger declines of 33.5% and 24.7% in the second and third quarters, respectively. Underlying these forecasts is our assumption that both exports and imports of travel services will decline sharply through the second quarter as air travel has essentially grounded to a halt among concerns and restrictions related to the global spread of COVID-19.

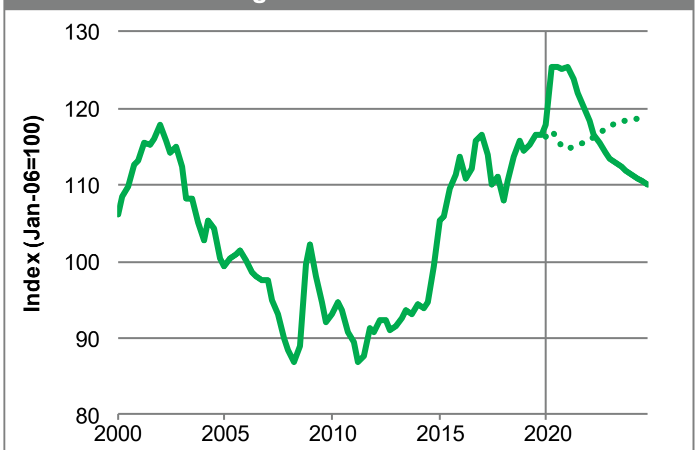
In this forecast, recoveries in both exports and imports take hold by the end of this year; on a fourth-quarter over fourth-quarter basis, exports are expected to rise 10.1% over 2021, outpaced by a 27.4% increase in imports.

Exports, imports, and net exports



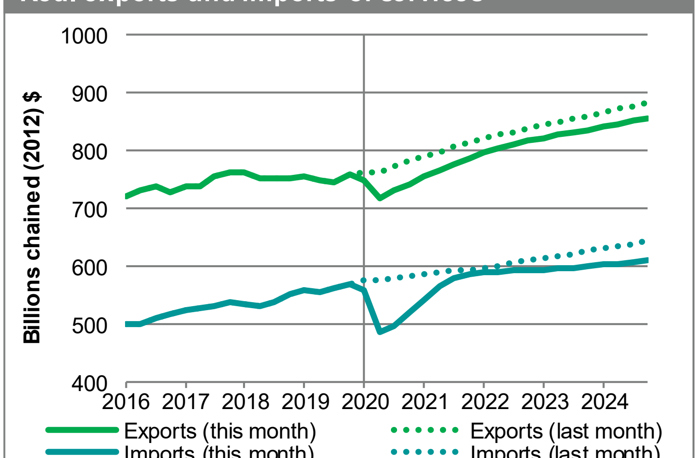
Source: IHS Markit, BEA © 2020 IHS Markit

Nominal trade-weighted dollar



Source: IHS Markit, Federal Reserve © 2020 IHS Markit

Real exports and imports of services



Source: IHS Markit, BEA © 2020 IHS Markit

Fiscal policy

CARES Act: A strong dose of prevention...and some stimulus

In response to the COVID-19 pandemic, on 27 March President Trump signed the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The Joint Committee on Taxation (JCT) has released an estimate of the revenue effects, over which it has jurisdiction. However, an official estimate of the total cost has not yet been released by the Congressional Budget Office. The nearby table presents a summary of the Act's provisions and their costs culled from a variety of sources. The Act includes "recovery rebates" to qualifying individuals (the cost of which JCT puts at $292 billion in FY 2020-21), an unprecedented increase in funding for unemployment benefits through state-administered programs ($260 billion), nearly $1 trillion in loans, loan guarantees, and other support to businesses, $150 billion for state & local governments, $180 billion for hospitals and other healthcare related activities, and $300 billion in reduced or delayed taxes, mostly corporate.

How is the CARES Act reflected in our forecast? To begin, we recognize that little of these monies will be recorded in the National Accounts as government consumption and gross investment, and so are not direct stimulus. Loans and loan guarantees (almost $900 billion of the total) are financial transactions not even recorded in the Accounts. Many of the grants and other direct payments will be recorded as subsidies or capital transfers that offset lost business income. In addition, we treated grants to state and local government as preventing them from having to raise taxes or cut spending in order to maintain projected balanced budgets. In total, we view roughly 75% of the cost of the CARES Act as geared toward preventing an outcome worse than the base forecast.

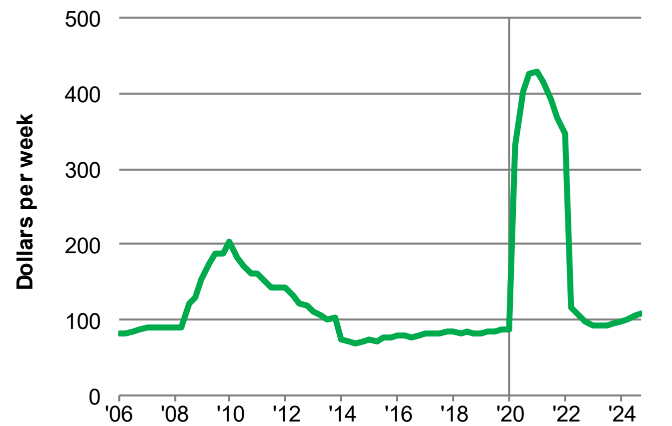
We did allow payments to persons to act as a modest stimulus. In particular, we treat unemployment benefits (see chart, middle), including the new emergency benefits, as replacing lost wages and salaries, and so assigned them the same marginal propensity to consume (MPC) as labor income. The recovery rebates are recorded as a temporary increase in federal transfer payments to persons (see chart, bottom) and, based on the JCT score, we assume these payments are not fully dispensed until the fourth quarter. Theory and evidence suggest such one-time payments are mostly saved. Accordingly, we assigned a wealth MPC (= 0.03) to 90% of the rebates, while assigning the rest an MPC of 1. However, we muted the potential impact on consumer spending in the second quarter, when we expect restrictions on social gathering remain in full force. This treatment of the rebates and unemployment benefits raised the growth rate of GDP in 2020 (measured year-over-year) by 0.2 percentage point, and by 0.7 percentage point in 2021—not nearly enough to offset the massive contraction caused by the spread of the virus and adoption of social distancing.

What's in the CARES Act

Billions of dollars	
Recovery rebates to individuals	292
Expand & extend unemployment benefits	260
Small business loans & grants	377
Loans & loan guarantees for large businesses & govt	510
Support for state & local govt	150
Health-related spending	180
SNAP, child nutrition & housing support	42
FEMA disaster assistance funds	45
Education spending	32
Support for transportation industries	72
Reduce / delay taxes	300
TOTAL	**2,260**

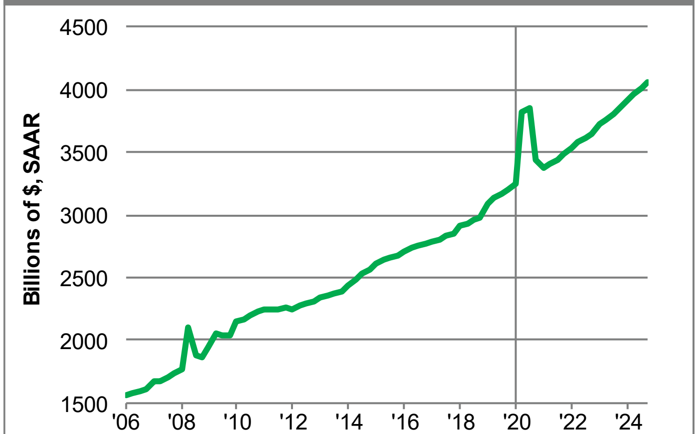
Source: IHS Markit, JCT, CRFB. WSJ © 2020 IHS Markit

Effective weekly unemployment benefit



Source: IHS Markit © 2020 IHS Markit

Personal transfers less unemployment benefits



Source: IHS Markit © 2020 IHS Markit

Inflation

Inflation eases as demand and energy prices collapse

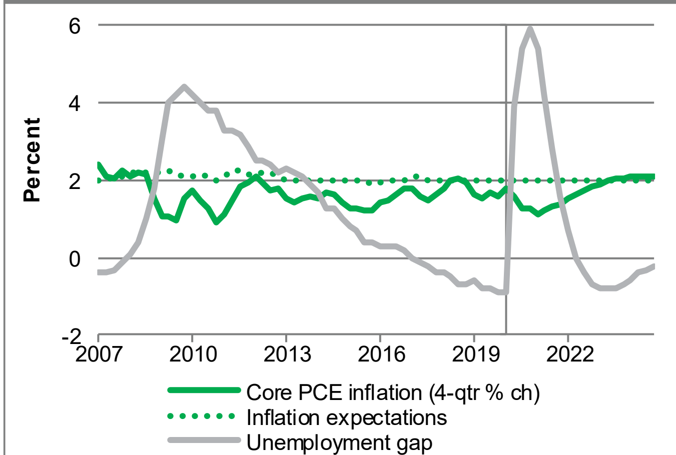
Through February 2020, inflation measured within personal consumption expenditures (PCE) remained muted, generally running a few tenths of a percentage point below the Fed's longer-run 2% objective. As of February, 12–month percent changes in the overall and core PCE price indices were each 1.8%. Inflation is likely to ease quickly over the next few months, as businesses in many sectors respond to sharp declines in demand by cutting prices, most notably in transportation and lodging. In addition, prices for energy commodities have fallen sharply, as retail gasoline prices have declined to the lowest levels in about 4 years.

We expect core PCE inflation to ease notably in 2020, with a four-quarter reading as of the fourth quarter of just 1.3%, which would be the lowest four-quarter core inflation reading since the fourth quarter of 2015. As demand recovers beginning, feebly, in the fourth quarter of 2020 and continuing in subsequent years, we expect core inflation to firm gradually, rising to 1.4% in 2021 and 1.8% in 2022.

Overall PCE inflation is projected to decline to just 0.7% in 2020 — in part reflecting massive declines in energy prices — then rise to 1.7% in 2021 and 2.2% in 2022. The price of WTI oil is projected to fall to nearly $11/barrel in the second quarter.

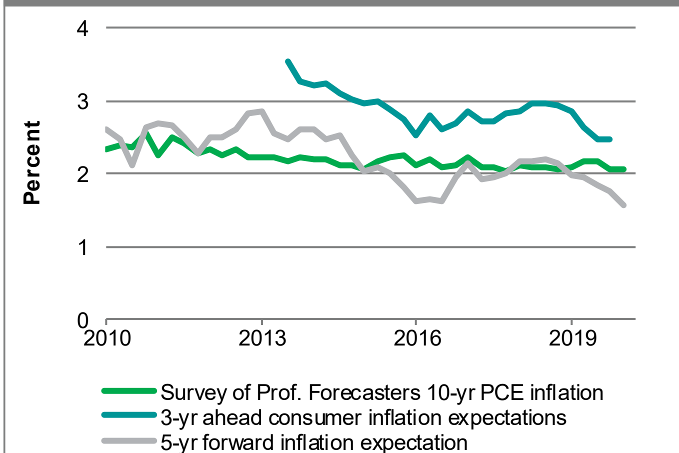
We assume that long-run inflation expectations reman well-anchored at 2.0%. However, the prolonged period when inflation has generally run below 2%, and the likelihood of further readings below 2% over the next few years, increases the risk that inflation expectations could soften, complicating the Fed's goal of lifting inflation up to 2% on a sustained and symmetric basis. The possibility that inflation expectations could decline constitutes a downside risk to our inflation forecast.

Core inflation falls further below 2%



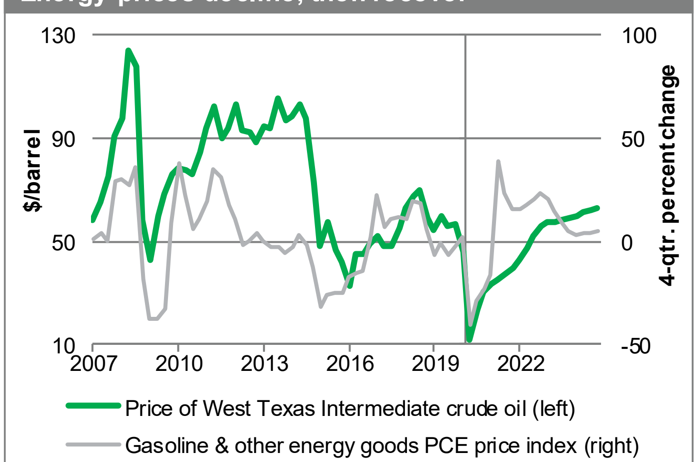
Source: IHS Markit, BEA, BLS, FRB Philadelphia Survey © 2020 IHS Markit

Inflation expectations near 2%



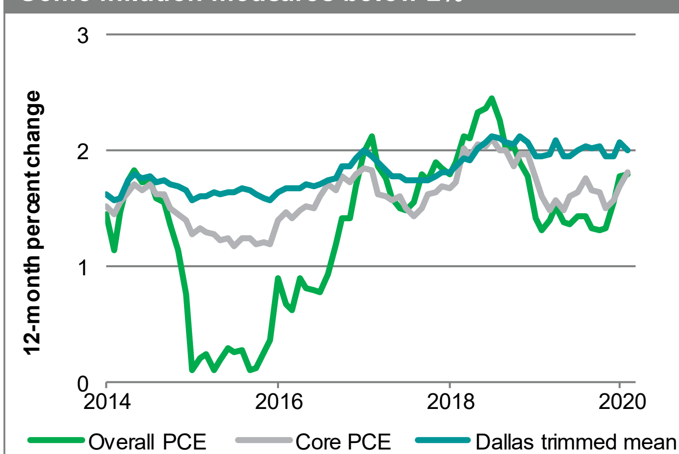
Source: IHS Markit, FRB New York, FRB Philadelphia, FRB St. Louis © 2020 IHS Markit

Energy prices decline, then recover



Source: IHS Markit, EIA © 2020 IHS Markit

Some inflation measures below 2%



Source: IHS Markit, BEA, FRB Dallas © 2020 IHS Markit

Fed call

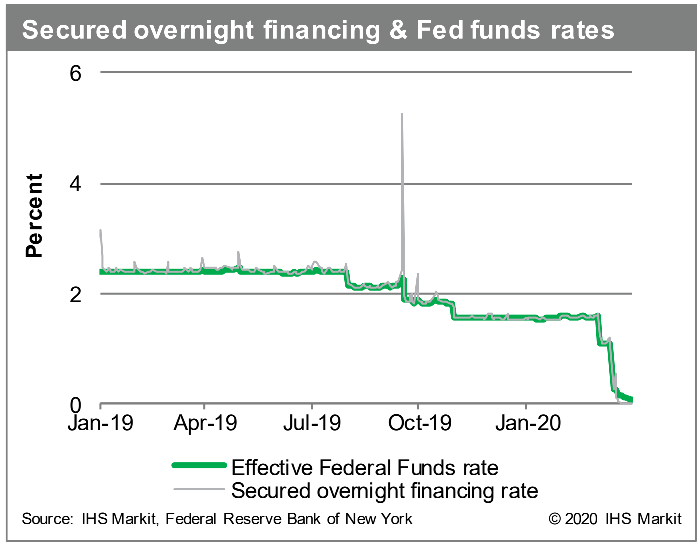
Fed moves aggressively to provide stimulus

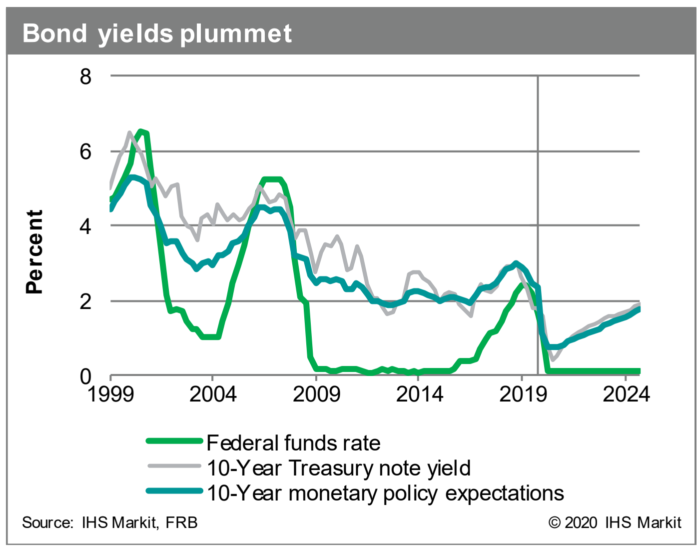
Since the beginning of March, the Federal Reserve has moved swiftly to provide policy stimulus in various forms, including reductions in interest rates, large-scale security purchases, frequent offerings of short-term loans through repurchase agreements (repos) at low interest rates, and several programs intended to bolster liquidity in financial markets and promote the flow of credit to households and businesses impacted by the COVID-19 pandemic. Some steps have been taken in coordination with the US Treasury. Additional steps to stimulate credit are likely in coming weeks.

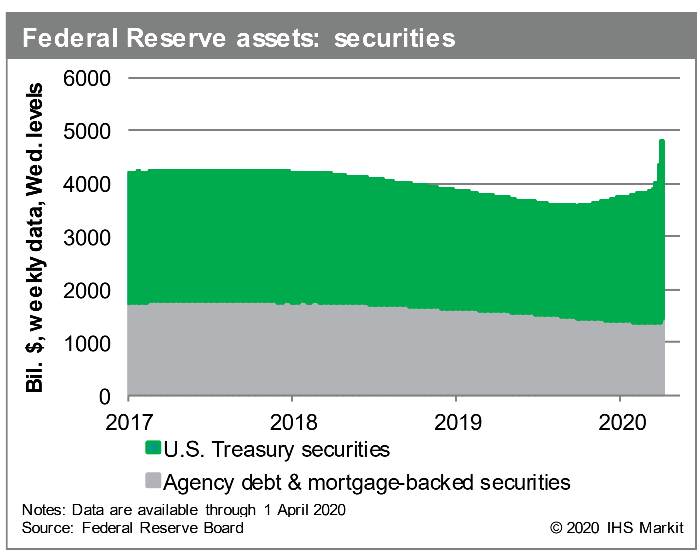
Policymakers at the Federal Reserve acknowledge that monetary and credit policy steps will not prevent a sharp recession. However, they intend to limit financial fall-out, improve liquidity in many sectors, and encourage banks and the wider financial system to provide credit needed by impacted households and businesses attempting to weather an extraordinary economic storm. Through aggressive actions that it hopes will lower borrowing costs, the Fed intends to help lay the groundwork in the financial system for an eventual recovery in economic activity.

The Fed's many policy moves included cutting overnight interest rates to approximately zero. Following a 50-basis-point reduction in 3 March, on 15 March the Federal Open Market Committee lowered the target for the federal funds rate by a full percentage point to a range of 0% to ¼%. The interest rate paid on excess reserves was lowered to 0.10% and the interest rate paid on overnight reverse purchase agreements was cut to 0.00%. Also in March, the Fed dramatically expanded its program of purchasing Treasury securities and Agency Mortgage-Backed securities (AMBS), eventually indicating it planned to purchase up to $125 billion per day to improve market functioning. These steps (along with others), helped to reduce volatility in Treasury markets and support more orderly trading conditions. Also last month, the Fed announced a dramatic expansion of its repo offerings, adding longer maturities and substantially increasing the aggregate offering limits to a level that far exceeded actual demand for "safe" short-term investments. By early April, demand for Fed repos had declined to essentially zero, an indication that the Fed's moves were having some positive impact on market functioning.

The Fed announced a variety of programs to improve market functioning, in some cases reviving crisis-era programs (such as the Primary Dealer Credit Facility and the Term Asset-Backed Loan Facility, and others). It also created new facilities to provide financing to investment-grade corporations. It announced the intent to establish a Main Street Business Lending Program to support lending to small-and-medium sized businesses.







Treasury yield curve

Treasury yields plummet on rate cuts, flight to safety, amid COVID-19 crisis

Treasury yields fell to historically low and in some cases record low levels in recent weeks, as investors preferred the relative safety and liquidity of benchmark Treasury securities. Short-term yields fell on rate cuts announced by the Federal Reserve, while term yields responded to the prospect that the federal funds rate target would remain essentially at zero for at least the next few years. (We assume the target for the federal funds rate will remain at its effective lower bound — a range of 0% to ¼% — for several years.)

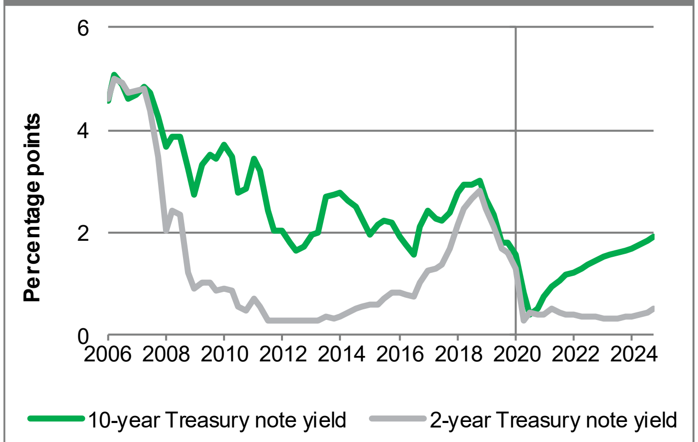
On 9 March the benchmark 10-year Treasury Note yield fell to 0.54% — and even lower in intra-day trading. As of 1 April, the 10-year yield was 0.62%. As a point of comparison, in late 2008, the 10-year yield never fell below 2.00% (in daily data). Also on 1 April, the 30-year Treasury bond yield was 1.27%, more than percentage point lower than the lowest in 2008.

Despite low yields, Treasury markets were subject to disorderly trading as mutual funds, and others were forced to sell their most liquid assets to meet actual and expected redemptions. This contributed to heightened volatility in yields and coincided with a sharp increase in "off-the-run" spreads and several risk spreads. ("Off-the-run" spreads reflect the difference in yield for the most recently issued Treasury security at a given maturity, and the previously issued security at that maturity. An increase in the off-the-run spread reflects heightened investor interest in the most liquid benchmark securities.)

Looking forward, we expect Treasury yields to remain unusually low throughout the recession, rising materially only once it becomes apparent the worst of the public health crisis has passed and that economic activity is poised to recover. Hence, we anticipate that the 10-year Treasury yield will decline to average just 0.39% in the third quarter, down from 1.56% and 0.81% in the first and second quarters, respectively. Term Treasury yields are expected to inch up in the fourth quarter of 2020 — aligning with the first small signs of economic recovery — then rise more substantially in subsequent years. We expect the 10-year yield to average 1.16% in the fourth quarter of 2021 and 1.45% in the fourth quarter of 2022.

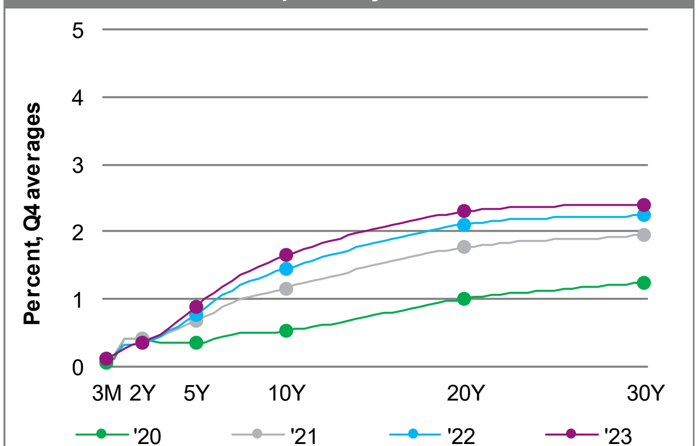
Those would still be unusually low levels in broader historical context. They reflect expectations that short-term interest rates will remain low for several years — including a near-zero federal funds rate — and only a very gradual rebound in the term premium. A gradual recovery and lower path for the term premium in this forecast is suggested by a sharp and persistent expansion in the Fed's holdings of Treasury securities.

Treasury yields



Source: IHS Markit, FRB © 2020 IHS Markit

Yield curve to shift up slowly



Source: IHS Markit © 2020 IHS Markit

Holding period returns on Treasuries

1-year holding period return through Q4, percent

	'19	'20	'21	'22	'23	'24
2-year T-Note	4.03	2.75	0.38	0.51	0.41	0.31
Rates view	1.08	1.15	0.01	0.10	0.04	-0.10
Rolldown	0.13	0.01	-0.03	0.00	0.03	0.07
Interest income	2.82	1.59	0.40	0.41	0.34	0.34
10-year T-Note	13.65	13.54	-4.64	-0.59	0.62	0.28
Rates view	10.44	11.54	-5.35	-2.33	-1.64	-2.28
Rolldown	0.16	0.20	0.19	0.58	0.81	0.92
Interest income	3.05	1.80	0.52	1.16	1.45	1.64
30-year T-Bond	25.17	27.98	-14.10	-4.19	-1.10	-1.56
Rates view	21.71	25.40	-15.91	-6.48	-3.59	-4.15
Rolldown	0.17	0.33	0.57	0.34	0.24	0.18
Interest income	3.29	2.25	1.24	1.95	2.25	2.41

Note: "Interest income" includes return from coupon reinvestment.
Source: IHS Markit © 2020 IHS Markit

Private rates and spreads

Risk spreads widen sharply on COVID-19 fears, remain elevated over near term

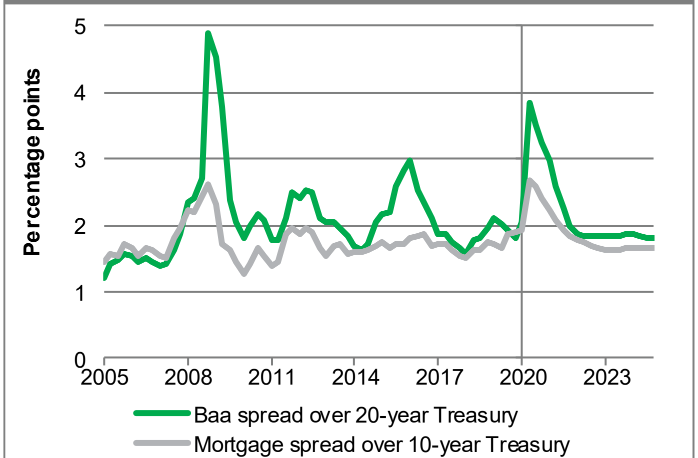
Corporate risk spreads have widened sharply in recent weeks, reflecting fears stemming from the rapid spread of the coronavirus disease 2019 (COVID-19). After narrowing to a recent low of 165 basis points at the end of last year, the spread between yields on Baa corporate bonds and comparable Treasuries widened to a recent peak of 395 basis points as of 23 March, a level not seen since the financial crisis of 2008–09.

We expect risk spreads to remain elevated, with the Baa spread cited above projected to peak at a quarterly average of 384 basis points in the second quarter. Thereafter, we look for risk spreads to narrow gradually. On balance, the Baa spread is projected to narrow 60 basis points over the second half of this year, reaching a still-elevated 324 basis points. As the recovery gains traction, we look for this spread to continue narrowing over the short-term forecast, reaching 181 basis points by the end of 2024, still above its expected level in the longer run. The widening in risk spreads is large enough to push the Baa yield higher even as Treasury yields decline to historic lows. We project the Baa yield rises from 3.91% in the fourth quarter of 2019 to a high of 5.00% in the second quarter of 2020 before easing through early 2022 as risk spreads narrow, reaching a low of 3.73% in the first quarter of that year. By the second quarter of 2022, the Baa yield is expected to begin rising again consistent with the pattern in Treasury yields, reaching 4.33% by the fourth quarter of 2024.

Market volatility, as measured by the VIX, spiked in March as concerns related to COVID-19 intensified. The VIX surged to 82.7 on 16 March, surpassing the highest reading from the Financial Crisis (80.9 on 20 November 2008). We expect the VIX to remain elevated over the near term. On a quarterly average basis, we look for the VIX to peak at 45.0 in the second quarter before beginning to ease, reaching a still-elevated 27.5 by the fourth quarter of this year. We look for the VIX to settle near its longer-run value by the second half of 2023.

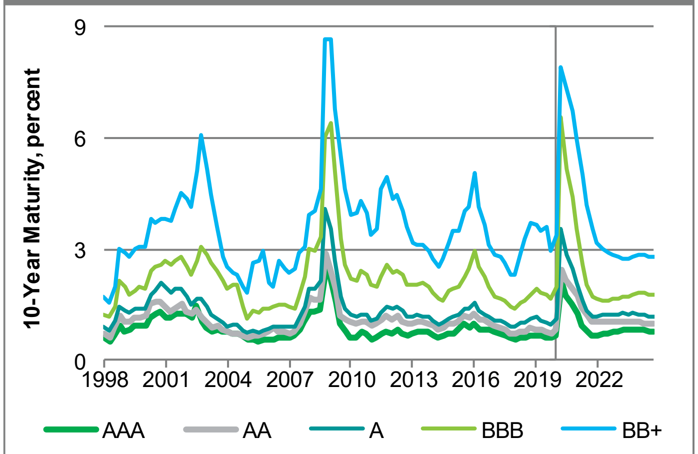
Mortgage rates are down sharply from late 2018, reflecting declines in term Treasury yields, although a widening spread has prevented them from falling even further. The spread between the conventional 30-year mortgage rate and the 10-year Treasury yield widened from roughly 185 basis points in early February to about 270 basis points by early April. Still, the conventional 30-year mortgage rate was just 3.33% as of the latest reading (2 April), down from 4.94% in mid-November 2018. In quarterly averages, we expect the conventional 30-year mortgage rate to hold steady near 3.50% over the first half of this year even as Treasury yields decline to historic lows, as spreads remain elevated, before easing over the second half of this year to a low of 2.93%. By early next year, mortgage rates begin to rise gradually, reaching 3.58% by the end of 2024.

Risk spreads widen sharply



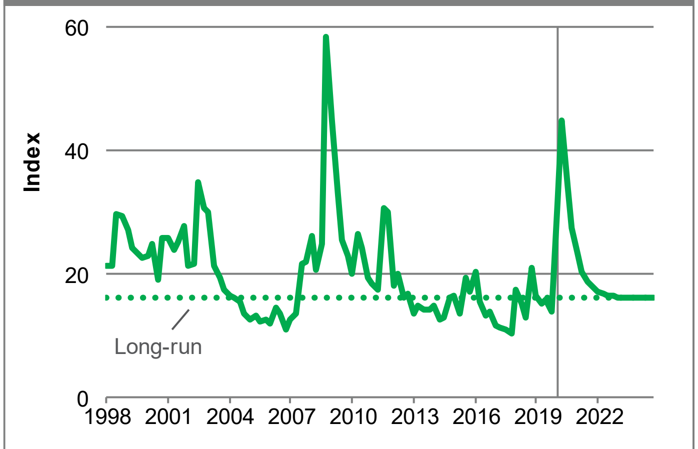
Source: IHS Markit, FRB © 2020 IHS Markit

Risk spreads widen across ratings



Source: IHS Markit, S&P © 2020 IHS Markit

CBOE volatility index for S&P 500



Source: IHS Markit, CBOE © 2020 IHS Markit

Equities

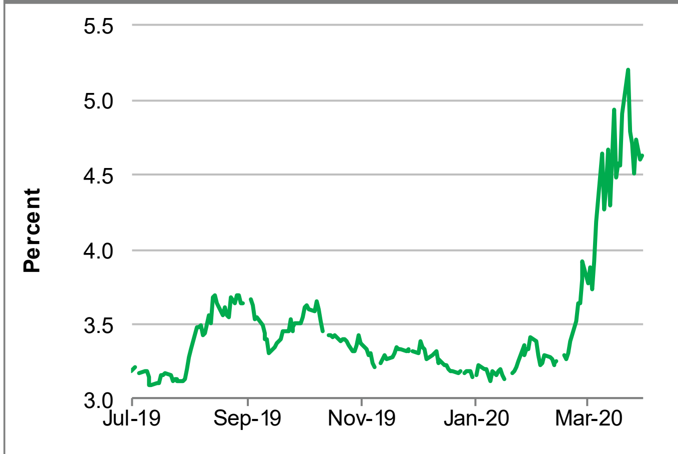
Fear of COVID-19 tanks the market, perhaps creating future opportunity

On 17 January, the last trading day before confirmation of the first COVID-19 infection in the United States, the S&P 500 share price index closed at 3330, just shy of the eventual record set a few weeks later. Since then it has fallen 25%, closing at 2489 on 3 April. Markets became gripped with fear as COVID-19 spread beyond China and, on 11 March, the World Health Organization, citing instances of community transmission of the virus, declared the outbreak a global pandemic. Our estimate of the daily equity risk premium spiked nearly 200 basis points between 17 January and 23 March, from 3.1% to 5.2% (chart, top). By itself, that implies a 30% reduction in the S&P price index. However, a flight to quality, combined with an aggressive shift by the Fed towards monetary easing (see Fed Call) drove term Treasury yields down nearly 100 basis points, limiting the decline in share values.

During strong economic cycles, the level of corporate profits is correlated with the growth of output. Hence, consistent with our forecast, as growth of GDP plunges in 2020 we expect operating earnings per share to drop sharply from recent highs around $40 to nearly $25 in mid-2020, then to rise temporarily above $45 next year when GDP growth surges with the gradual lifting of restrictions on social gathering, before finally returning to a path similar to that shown in last month's pre-pandemic forecast of 3 March (chart, middle). Relative to that path, the expected cumulative loss in earnings during this whipsaw is not nearly enough to account for the destruction of market value over the last two months, which instead is mainly the result of investors' eschewing of equity risk.

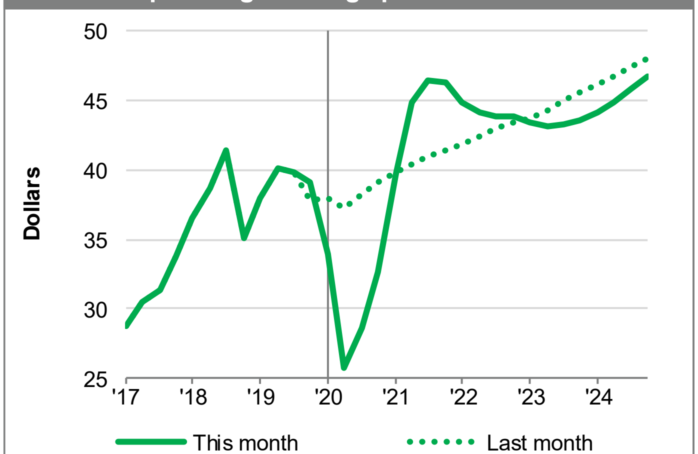
With the equity premium currently elevated relative to historical norms, but our forecast showing an eventual return to economic normalcy, we expect the premium to gradually decline to 2.7% by 2027, with an extended rally beginning in the third quarter of this year as the number of new COVID-19 infections in the US tapers off, restrictions on social gathering are lifted, and the economy recovers. This scenario implies prospective total annual returns on the S&P index, assuming full reinvestment of dividends, of 26% over the next year, 15% over the next two years, 11% over next five years, and 9% over the next 10 years (chart, bottom). The recovery in equity markets will be supported by the rebound in earnings, a returning appetite for risk, and extraordinarily low risk-free Treasury yields for an extended period. In addition, the CARES Act repealed certain provisions of the 2017 Tax Act that broadened the corporate tax base, including limitations on deductions of interest payments. The ratio of price to four-quarter trailing earnings, currently near 17, will climb to 25% by early 2021 as prices rise ahead of the recovery in earnings, before then subsiding to an equilibrium level near 20 by the end of next year.

Daily S&P 500 equity risk premium (thru 31 March)



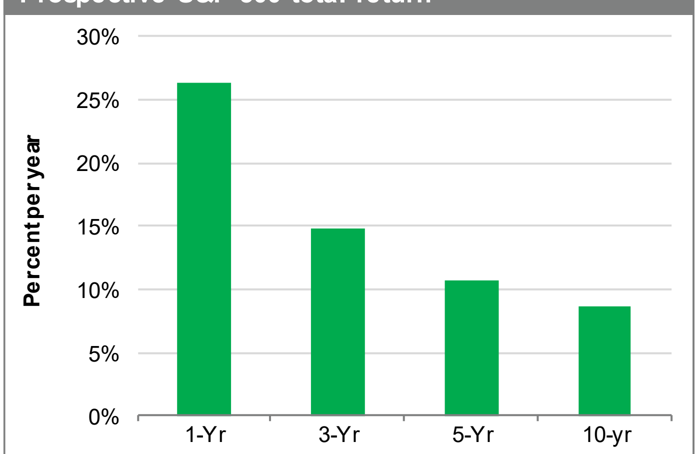
Source: IHS Markit, S&P © 2020 IHS Markit

S&P 500 operating earnings per share



Source: IHS Markit © 2020 IHS Markit

Prospective S&P 500 total return



Source: IHS Markit © 2020 IHS Markit

Monthly Economic Indicators

	Feb. 2019	Mar. 2019	Aug. 2019	Sep. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020	2017	2018	2019
Industrial Markets													
Industrial Prod. Total (2012=100.0)	109.6	109.7	109.9	109.5	109.0	110.0	109.6	109.0	109.6		104.4	108.6	109.5
Percent Change	-0.5	0.1	0.7	-0.3	-0.4	0.9	-0.4	-0.5	0.6		2.3	3.9	0.9
Percent Change Year Earlier	2.7	2.3	0.3	-0.2	-0.8	-0.4	-0.9	-1.0	0.0				
Capacity Utilization, Manufacturing (%)	76.3	76.2	75.7	75.1	74.6	75.2	75.2	75.0	75.0		75.1	76.6	75.6
Unemployment Rate (%)	3.8	3.8	3.7	3.5	3.6	3.5	3.5	3.6	3.5	4.4	4.3	3.9	3.7
Payroll Employment (Mil.)	150.135	150.282	151.160	151.368	151.553	151.814	151.998	152.212	152.487	151.786	146.589	148.891	150.935
Change (Mil.)	0.001	0.147	0.207	0.208	0.185	0.261	0.184	0.214	0.275	-0.701	2.260	2.302	2.045
Leading Indicator (2016=1.000)	1.113	1.115	1.118	1.116	1.114	1.115	1.112	1.12	1.121		1.039	1.098	1.115
Percent Change	0.2	0.2	-0.2	-0.2	-0.2	0.1	-0.3	0.7	0.1		3.9	5.7	1.5
New Orders, Mfg. (Bil. $)	496.8	503.3	499.6	495.6	496.6	490.7	500.2	497.5	497.4		465.5	499.4	497.2
Percent Change	-1.0	1.3	-0.1	-0.8	0.2	-1.2	1.9	-0.5	0.0		5.7	7.3	-0.5
Inv. Chg., Mfg. & Trade (Bil. $)	6.2	-0.2	-1.4	-1.5	1.5	-3.5	1.6	-2.8			60.1	91.8	39.1
Merchandise Trade Bal. (Bil. $)	-70.3	-72.2	-73.5	-71.1	-67.1	-63.7	-68.5	-66.0	-59.9		-793.4	-874.8	-852.8
Consumer Markets													
Disposable Income (Bil. 2012$)	14889	14922	15021	15066	15044	15097	15079	15147	15214		14003	14556	14974
Percent Change	0.4	0.2	0.5	0.3	-0.1	0.4	-0.1	0.5	0.4		2.9	4.0	2.9
Personal Income (Bil. $)	18363	18446	18688	18729	18752	18838	18872	18988	19095		16879	17819	18602
Percent Change	0.6	0.4	0.4	0.2	0.1	0.5	0.2	0.6	0.6		4.7	5.6	4.4
Personal Saving Rate (%)	8.8	8.4	7.7	7.8	7.6	7.7	7.5	7.9	8.2		7.0	7.7	7.9
Consumer Expenditures (Bil. $)	14217	14355	14682	14708	14745	14793	14847	14881	14909		13312	13999	14563
Percent Change	-0.1	1.0	0.3	0.2	0.3	0.3	0.4	0.2	0.2		4.4	5.2	4.0
Retail Sales (Bil. $)	506.1	513.6	526.9	524.7	526.4	527.5	527.6	530.9	528.1		5746.8	6024.5	6236.3
Percent Change	0.1	1.5	0.6	-0.4	0.3	0.2	0.0	0.6	-0.5		4.6	4.8	3.5
Non-Auto. Retail Sales (Bil. $)	405.0	410.1	420.4	419.4	420.0	419.4	421.5	423.9	422.1		4569.8	4820.4	4984.0
Percent Change	-0.1	1.3	0.2	-0.2	0.2	-0.2	0.5	0.6	-0.4		5.0	5.5	3.4
New Light-Vehicle Sales (Mil.)	16.5	17.3	17.0	17.1	16.5	17.0	16.6	16.9	16.7	11.4	17.1	17.2	16.9
Housing Starts (Mil.)	1.149	1.199	1.375	1.266	1.34	1.381	1.601	1.624	1.599		1.209	1.250	1.298
New Home Sales (Mil.)	0.669	0.693	0.708	0.725	0.707	0.7	0.724	0.8	0.765		0.617	0.615	0.684
Existing Home Sales (Mil.)	5.380	5.230	5.430	5.410	5.410	5.320	5.530	5.420	5.770		5.527	5.334	5.330
Chg. Consumer Install. Credit (Bil. $)	16.2	12.2	15.5	10.8	13.4	7.4	21.0	12.1	22.3		185.6	181.7	180.4
Prices and Wages													
CPI, All Urban Consumers	2.532	2.541	2.563	2.566	2.572	2.578	2.584	2.588	2.591		2.451	2.511	2.557
Percent Change Year Earlier	1.5	1.9	1.7	1.7	1.8	2.0	2.3	2.5	2.3		2.1	2.4	1.8
Core Cons. Price Defl. (2012=100.0)	110.9	111.0	112.0	112.1	112.2	112.3	112.6	112.7	112.9		107.8	109.9	111.7
Percent Change Year Earlier	1.6	1.5	1.8	1.7	1.6	1.5	1.6	1.7	1.8		1.6	2.0	1.6
PPI, Finished Goods	2.034	2.057	2.055	2.052	2.065	2.074	2.081	2.078	2.06		1.981	2.041	2.058
Percent Change Year Earlier	0.4	1.3	0.3	0.0	-0.1	1.1	2.1	2.6	1.3		3.2	3.0	0.8
PPI, Industrial Commodities (NSA)	2.003	2.022	2.002	1.995	1.991	1.993	1.994	1.994	1.968		1.937	2.037	2.007
Percent Change Year Earlier	-0.1	1.2	-2.9	-3.4	-4.1	-2.6	-1.4	-0.4	-1.7		4.9	5.2	-1.5
Avg. Private Hourly Earnings ($)	23.19	23.28	23.64	23.7	23.76	23.81	23.84	23.88	23.97	24.07	22.05	22.70	23.51
Percent Change Year Earlier	3.5	3.5	3.7	3.7	3.8	3.5	3.2	3.3	3.4	3.4	2.3	3.0	3.5
Brent Crude, Spot Price ($/bbl.)	63.96	66.14	59.04	62.83	59.71	63.21	67.22	63.65	55.70	32.42	54.83	70.96	64.34
Percent Change Year Earlier	-2.1	-2.1	-18.6	-20.4	-26.3	-2.4	19.0	7.1	-12.9	-51.0	23.9	29.4	-9.3
Henry Hub Spot Natural Gas ($/mmbtu)	2.80	2.81	3.28	4.15	3.96	3.12	2.69	2.95	2.64	2.64	2.65	3.00	3.10
Percent Change Year Earlier	-9.0	-9.6	13.8	37.6	40.8	-20.3	1.0	9.3	-5.5	-6.0	6.9	13.4	3.3
Financial Markets, Period Average													
Federal Funds Rate (%)	2.40	2.41	2.13	2.04	1.83	1.55	1.55	1.55	1.58	0.65	1.00	1.83	2.16
3-Month T-Bill Rate (%)	2.39	2.40	1.95	1.89	1.65	1.54	1.54	1.52	1.52	0.29	0.93	1.94	2.06
Commercial Bank Prime Rate (%)	5.50	5.50	5.25	5.15	4.99	4.75	4.75	4.75	4.75	3.81	4.10	4.90	5.28
10-Year Treasury Note Yield (%)	2.68	2.57	1.63	1.70	1.71	1.81	1.86	1.76	1.50	0.87	2.33	2.91	2.14
Conv. Mortgage Rate, FHLMC (%)	4.40	4.28	3.62	3.61	3.67	3.71	3.72	3.62	3.47	3.45	3.99	4.54	3.94
M1 Money Supply (Bil. $)	3760	3730	3854	3904	3924	3949	3979	3982	4020		3524	3678	3842
Percent Change	0.5	-0.8	-0.1	1.3	0.5	0.6	0.8	0.1	0.9		7.8	3.8	6.0
M2 Money Supply (Bil. $)	14464	14512	14934	15025	15155	15259	15319	15439	15536		13583	14107	14830
Percent Change	0.2	0.3	0.5	0.6	0.9	0.7	0.4	0.8	0.6		4.7	3.7	6.5

Source: IHS Markit

Monthly Economic Indicators

	Feb. 2019	Mar. 2019	Aug. 2019	Sep. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020	2017	2018	2019
Industrial Markets													
Industrial Prod. Total (2012=100.0)	109.6	109.7	109.9	109.5	109.0	110.0	109.6	109.0	109.6		104.4	108.6	109.5
Percent Change (Q4/Q4 for Annual Values)	-0.5	0.1	0.7	-0.3	-0.4	0.9	-0.4	-0.5	0.6		3.6	4.0	-0.7
Percent Change Year Earlier	2.7	2.3	0.3	-0.2	-0.8	-0.4	-0.9	-1.0	0.0				
Capacity Utilization, Manufacturing (%)	76.3	76.2	75.7	75.1	74.6	75.2	75.2	75.0	75.0		75.1	76.6	75.6
Unemployment Rate (%)	3.8	3.8	3.7	3.5	3.6	3.5	3.5	3.6	3.5	4.4	4.3	3.9	3.7
Payroll Employment (Mil.)	150.135	150.282	151.160	151.368	151.553	151.814	151.998	152.212	152.487	151.786	146.589	148.891	150.935
Change (Mil.)	0.001	0.147	0.207	0.208	0.185	0.261	0.184	0.214	0.275	-0.701	2.260	2.302	2.045
Leading Indicator (2016=1.000)	1.113	1.115	1.118	1.116	1.114	1.115	1.112	1.12	1.121		1.039	1.098	1.115
Percent Change (Q4/Q4 for Annual Values)	0.2	0.2	-0.2	-0.2	-0.2	0.1	-0.3	0.7	0.1		5.5	4.7	0.1
New Orders, Mfg. (Bil. $)	496.8	503.3	499.6	495.6	496.6	490.7	500.2	497.5	497.4		465.5	499.4	497.2
Percent Change (Q4/Q4 for Annual Values)	-1.0	1.3	-0.1	-0.8	0.2	-1.2	1.9	-0.5	0.0		6.9	4.3	-1.2
Inv. Chg., Mfg. & Trade (Bil. $)	6.2	-0.2	-1.4	-1.5	1.5	-3.5	1.6	-2.8			60.1	91.8	39.1
Merchandise Trade Bal. (Bil. $)	-70.3	-72.2	-73.5	-71.1	-67.1	-63.7	-68.5	-66.0	-59.9		-793.4	-874.8	-852.8
Consumer Markets													
Disposable Income (Bil. 2012$)	14889	14922	15021	15066	15044	15097	15079	15147	15214		14003	14556	14974
Percent Change (Q4/Q4 for Annual Values)	0.4	0.2	0.5	0.3	-0.1	0.4	-0.1	0.5	0.4		3.4	3.9	2.4
Personal Income (Bil. $)	18363	18446	18688	18729	18752	18838	18872	18988	19095		16879	17819	18602
Percent Change (Q4/Q4 for Annual Values)	0.6	0.4	0.4	0.2	0.1	0.5	0.2	0.6	0.6		5.4	4.9	4.1
Personal Saving Rate (%)	8.8	8.4	7.7	7.8	7.6	7.7	7.5	7.9	8.2		7.0	7.7	7.9
Consumer Expenditures (Bil. $)	14217	14355	14682	14708	14745	14793	14847	14881	14909		13312	13999	14563
Percent Change (Q4/Q4 for Annual Values)	-0.1	1.0	0.3	0.2	0.3	0.3	0.4	0.2	0.2		4.8	4.6	4.1
Retail Sales (Bil. $)	506.1	513.6	526.9	524.7	526.4	527.5	527.6	530.9	528.1		5746.8	6024.5	6236.3
Percent Change (Q4/Q4 for Annual Values)	0.1	1.5	0.6	-0.4	0.3	0.2	0.0	0.6	-0.5		5.5	3.5	3.9
Non-Auto. Retail Sales (Bil. $)	405.0	410.1	420.4	419.4	420.0	419.4	421.5	423.9	422.1		4569.8	4820.4	4984.0
Percent Change (Q4/Q4 for Annual Values)	-0.1	1.3	0.2	-0.2	0.2	-0.2	0.5	0.6	-0.4		6.1	4.0	3.6
New Light-Vehicle Sales (Mil.)	16.5	17.3	17.0	17.1	16.5	17.0	16.6	16.9	16.7	11.4	17.1	17.2	16.9
Housing Starts (Mil.)	1.149	1.199	1.375	1.266	1.34	1.381	1.601	1.624	1.599		1.209	1.250	1.298
New Home Sales (Mil.)	0.669	0.693	0.708	0.725	0.707	0.7	0.724	0.8	0.765		0.617	0.615	0.684
Existing Home Sales (Mil.)	5.380	5.230	5.430	5.410	5.410	5.320	5.530	5.420	5.770		5.527	5.334	5.330
Chg. Consumer Install. Credit (Bil. $)	16.2	12.2	15.5	10.8	13.4	7.4	21.0	12.1	22.3		185.6	181.7	180.4
Prices and Wages													
CPI, All Urban Consumers	2.532	2.541	2.563	2.566	2.572	2.578	2.584	2.588	2.591		2.451	2.511	2.557
Percent Change Year Earlier (Q4/Q4 for Annual Values)	1.5	1.9	1.7	1.7	1.8	2.0	2.3	2.5	2.3		2.1	2.2	2.0
Core Cons. Price Defl. (2012=100.0)	110.9	111.0	112.0	112.1	112.2	112.3	112.6	112.7	112.9		107.8	109.9	111.7
Percent Change Year Earlier (Q4/Q4 for Annual Values)	1.6	1.5	1.8	1.7	1.6	1.5	1.6	1.7	1.8		1.7	1.9	1.6
PPI, Finished Goods	2.034	2.057	2.055	2.052	2.065	2.074	2.081	2.078	2.06		1.981	2.041	2.058
Percent Change Year Earlier (Q4/Q4 for Annual Values)	0.4	1.3	0.3	0.0	-0.1	1.1	2.1	2.6	1.3		3.5	2.3	1.0
PPI, Industrial Commodities (NSA)	2.003	2.022	2.002	1.995	1.991	1.993	1.994	1.994	1.968		1.937	2.037	2.007
Percent Change Year Earlier (Q4/Q4 for Annual Values)	-0.1	1.2	-2.9	-3.4	-4.1	-2.6	-1.4	-0.4	-1.7		4.9	4.2	-2.7
Avg. Private Hourly Earnings ($)	23.19	23.28	23.64	23.7	23.76	23.81	23.84	23.88	23.97	24.07	22.05	22.70	23.51
Percent Change Year Earlier (Q4/Q4 for Annual Values)	3.5	3.5	3.7	3.7	3.8	3.5	3.2	3.3	3.4	3.4	2.3	3.4	3.5
Brent Crude, Spot Price ($/bbl.)	63.96	66.14	59.04	62.83	59.71	63.21	67.22	63.65	55.70	32.42	54.83	70.96	64.34
Percent Change Year Earlier (Q4/Q4 for Annual Values)	-2.1	-2.1	-18.6	-20.4	-26.3	-2.4	19.0	7.1	-12.9	-51.0	20.3	9.6	-6.0
Henry Hub Spot Natural Gas ($/mmbtu)	2.80	2.81	3.28	4.15	3.96	3.12	2.69	2.95	2.64	2.64	2.65	3.00	3.10
Percent Change Year Earlier (Q4/Q4 for Annual Values)	-9.0	-9.6	13.8	37.6	40.8	-20.3	1.0	9.3	-5.5	-6.0	57.9	-3.1	4.1
Financial Markets, Period Average													
Federal Funds Rate (%)	2.40	2.41	2.13	2.04	1.83	1.55	1.55	1.55	1.58	0.65	1.00	1.83	2.16
3-Month T-Bill Rate (%)	2.39	2.40	1.95	1.89	1.65	1.54	1.54	1.52	1.52	0.29	0.93	1.94	2.06
Commercial Bank Prime Rate (%)	5.50	5.50	5.25	5.15	4.99	4.75	4.75	4.75	4.75	3.81	4.10	4.90	5.28
10-Year Treasury Note Yield (%)	2.68	2.57	1.63	1.70	1.71	1.81	1.86	1.76	1.50	0.87	2.33	2.91	2.14
Conv. Mortgage Rate, FHLMC (%)	4.40	4.28	3.62	3.61	3.67	3.71	3.72	3.62	3.47	3.45	3.99	4.54	3.94
M1 Money Supply (Bil. $)	3760	3730	3854	3904	3924	3949	3979	3982	4020		3524	3678	3842
Percent Change (Q4/Q4 for Annual Values)	0.5	-0.8	-0.1	1.3	0.5	0.6	0.8	0.1	0.9		8.1	3.0	6.2
M2 Money Supply (Bil. $)	14464	14512	14934	15025	15155	15259	15319	15439	15536		13583	14107	14830
Percent Change (Q4/Q4 for Annual Values)	0.2	0.3	0.5	0.6	0.9	0.7	0.4	0.8	0.6		4.9	3.5	6.8

Source: IHS Markit

Summary of the US Economy

	2019:3	2019:4	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4	2022:1	2022:2	2022:3
Composition of Real GDP, Percent Change, Annual Rate													
Gross Domestic Product	2.1	2.1	-3.5	-26.5	-0.4	6.0	15.0	13.1	7.7	5.0	2.0	2.4	2.2
Final Sales of Domestic Product	2.1	3.1	-2.7	-26.2	5.6	7.5	9.1	9.0	5.0	3.9	1.9	2.8	2.8
Gross Domestic Income	1.2	2.6	-3.3	-26.4	-0.1	6.3	15.3	13.3	7.8	5.1	2.1	2.5	2.3
Avg. of GDP and GDI	1.7	2.4	-3.4	-26.5	-0.3	6.2	15.2	13.2	7.7	5.1	2.1	2.4	2.3
Total Consumption	3.1	1.8	-4.7	-32.2	8.4	12.6	11.5	12.7	7.4	6.1	2.2	1.7	1.3
Durables	8.1	2.8	-11.2	-51.4	30.1	21.0	20.2	22.4	11.6	10.6	3.3	3.3	2.6
Nondurables	3.9	-0.6	2.0	-9.6	-2.4	-0.1	5.5	9.0	6.2	5.0	1.3	0.7	0.4
Services	2.2	2.4	-5.6	-34.9	9.2	15.6	12.0	12.5	7.1	5.8	2.2	1.7	1.4
Nonresidential Fixed Investment	-2.3	-2.4	-6.8	-29.6	-19.7	0.7	17.6	18.5	13.5	9.1	4.7	4.4	4.3
Equipment	-3.8	-4.3	-15.2	-34.3	-25.4	2.0	22.3	27.1	17.1	10.8	4.7	3.4	3.5
Information Processing Equipment	-6.4	0.8	-7.8	-3.6	-15.3	-3.7	23.5	21.4	13.7	13.2	3.6	3.6	3.5
Industrial Equipment	6.7	-12.6	-13.5	-9.6	-30.8	-28.4	38.1	51.7	16.1	12.7	8.3	-2.5	1.5
Transportation equipment	-11.3	-0.6	-26.7	-87.7	160.7	24.1	14.6	-2.4	22.9	17.0	26.8	33.6	18.8
Aircraft	-82.0	113.1	-61.0	-91.5	285.1	138.7	98.7	97.1	72.3	51.8	38.2	42.8	6.0
Other Equipment	-0.4	-7.4	-14.3	6.7	-76.5	34.1	14.2	49.6	19.1	-0.8	-15.5	-17.3	-10.7
Intellectual Property Products	4.7	2.8	5.5	-17.5	-6.1	4.7	21.1	19.3	12.0	8.6	4.2	4.7	4.4
Structures	-9.9	-7.2	-9.1	-39.6	-31.3	-9.4	1.9	0.1	9.0	6.7	6.1	5.9	5.7
Commercial & Health Care	-4.6	1.2	-15.1	-38.4	-32.5	3.8	12.3	9.5	17.9	25.2	21.2	14.4	7.0
Manufacturing	7.3	2.1	-5.7	-55.2	-20.8	-20.8	2.4	9.5	4.1	0.8	-0.9	-10.0	-6.2
Power & Communication	1.5	5.1	6.2	-12.2	-27.5	-22.8	-22.5	-10.8	-2.4	-23.1	-15.1	-7.9	4.7
Mining & Petroleum	-29.5	-30.7	-10.0	-67.0	-36.0	-7.9	19.2	-8.9	-2.5	4.1	-0.8	9.9	9.2
Other	-13.5	-10.3	-15.0	-23.3	-35.3	-5.1	6.5	-0.3	18.3	17.8	11.5	10.4	8.3
Residential Fixed Investment	4.6	6.5	13.9	-57.4	-26.6	-2.9	18.9	27.3	24.7	17.7	7.1	4.1	2.3
Exports	0.9	2.1	-5.1	-17.3	0.1	5.9	16.7	11.1	7.9	4.9	3.8	4.2	3.9
Imports	1.8	-8.4	-8.9	-33.4	-24.9	14.6	28.9	34.1	28.9	20.0	6.8	-3.1	-4.8
Federal Government	3.3	3.4	1.4	6.7	1.9	0.3	0.4	0.3	0.2	0.0	0.1	-0.6	-0.5
State & Local Government	0.7	2.0	1.7	-3.2	2.1	1.8	2.7	2.1	2.0	1.2	0.9	0.7	0.5
Billions of Dollars													
Real GDP	19121.1	19222.0	19050.3	17637.7	17620.2	17880.7	18518.4	19095.8	19451.8	19690.0	19788.1	19905.3	20015.3
Nominal GDP	21542.5	21729.1	21603.0	20070.7	20135.7	20502.5	21298.8	22035.5	22519.1	22870.4	23072.7	23298.3	23526.6
Prices & Wages, Percent Change, Annual Rate													
GDP Deflator	1.8	1.3	1.3	1.4	1.7	1.4	1.2	1.3	1.3	1.3	1.5	1.5	1.7
Consumer Prices	1.8	2.4	1.6	-6.3	3.8	3.1	2.4	2.2	2.2	2.2	2.8	2.9	3.3
Producer Prices, Finished Goods	-1.2	3.3	-1.9	-11.6	9.7	9.5	3.4	2.2	2.1	2.2	2.8	3.2	3.7
Employment Cost Index - Total Comp.	3.3	2.6	2.7	0.6	-1.4	-1.2	0.2	0.7	1.7	2.0	2.1	2.2	2.3
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	61.93	63.38	50.89	11.33	23.00	30.00	33.00	35.17	37.33	39.00	43.54	48.30	54.59
Productivity (%ch., saar)	-0.3	1.2	-6.2	-10.9	16.1	11.1	13.4	5.6	-1.2	-3.2	-4.2	-2.2	-1.2
Total Industrial Production (%ch., saar)	1.1	0.2	-7.3	-35.4	-19.7	-7.8	13.5	15.6	10.7	5.8	2.3	2.6	2.6
Factory Operating Rate	75.4	75.0	73.3	63.3	59.6	58.7	61.4	64.5	66.8	68.2	68.8	69.3	69.9
Nonfarm Inven. Chg. (Bil. 2012 $)	77.6	19.0	-29.4	-54.8	-362.8	-438.1	-174.7	15.5	154.4	212.2	218.9	196.5	169.6
Consumer Sentiment Index	93.8	97.2	96.6	70.6	68.6	73.6	83.6	86.6	88.6	89.6	90.1	90.6	91.1
Light Vehicle Sales (Mil. units, saar)	17.00	16.73	15.22	10.01	13.57	14.12	14.66	15.00	15.21	15.34	15.43	15.53	15.63
Housing Starts (Mil. units, saar)	1.282	1.441	1.443	0.954	0.925	0.988	1.033	1.090	1.152	1.208	1.243	1.262	1.266
Exist. House Sales (Total, Mil. saar)	5.410	5.420	5.414	3.972	4.232	4.704	5.141	5.585	5.976	6.213	6.281	6.270	6.220
Unemployment Rate (%)	3.6	3.5	3.6	8.4	9.9	10.3	9.8	8.6	7.2	6.0	5.1	4.4	4.0
Payroll Employment (%ch., saar)	1.5	1.7	2.0	-18.4	-12.7	-4.5	1.7	6.2	7.7	7.5	6.0	4.7	3.6
Federal Surplus (Unified, nsa, bil. $)	-237.3	-356.6	-422.3	-458.2	-713.2	-665.6	-686.0	-336.6	-465.7	-484.2	-522.4	-152.5	-313.1
Current Account Balance (Bil. $)	-501.5	-439.3	-383.3	-61.3	147.4	109.8	30.3	-110.7	-256.9	-389.0	-445.4	-426.1	-400.3
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	2.19	1.64	1.23	0.09	0.10	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13
3-Month Treasury Bill Rate (%)	1.98	1.58	1.11	0.01	0.03	0.06	0.08	0.09	0.09	0.10	0.10	0.10	0.11
10-Year Treasury Note Yield (%)	1.80	1.79	1.56	0.81	0.39	0.53	0.76	0.96	1.07	1.16	1.23	1.31	1.39
30-Year Fixed Mortgage Rate (%)	3.66	3.70	3.50	3.50	2.98	2.93	2.98	3.03	3.01	3.01	3.02	3.05	3.08
S&P 500 Stock Index	2959	3086	3069	2583	2661	2848	3077	3305	3463	3548	3610	3660	3699
(Four-Quarter % change)	3.8	14.7	12.8	-10.4	-10.1	-7.7	0.3	27.9	30.1	24.6	17.3	10.8	6.8
Exchange Rate, Broad Index of Partners	1.272	1.271	1.287	1.367	1.369	1.366	1.370	1.352	1.332	1.311	1.291	1.274	1.259
(% change, annual rate)	4.0	-0.2	5.3	27.3	0.5	-1.0	1.1	-5.1	-5.7	-6.0	-6.0	-5.4	-4.4
Incomes													
Personal Income (% ch., saar)	2.6	3.1	4.3	-1.9	1.1	-5.3	6.3	7.7	6.3	5.6	4.8	2.5	3.9
Real Disposable Income (%ch., saar)	2.1	1.6	2.9	9.8	1.6	-7.3	3.7	4.1	2.3	1.8	1.2	-1.0	0.7
Saving Rate (%)	7.7	7.6	9.3	19.3	18.0	14.0	12.5	10.8	9.8	8.9	8.6	8.0	7.9
After-Tax Profits (Billions of $)	1837	1904	1636	1148	1424	1680	1996	2237	2319	2327	2279	2269	2276
(Four-quarter % change)	-1.1	4.1	-9.1	-38.3	-22.5	-11.8	22.0	94.9	62.8	38.6	14.2	1.5	-1.9

Source: IHS Markit

Summary of the US Economy

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Composition of Real GDP, Percent Change													
Gross Domestic Product	1.8	2.5	2.9	1.6	2.4	2.9	2.3	-5.4	6.3	4.0	1.6	1.3	1.9
Final Sales of Domestic Product	1.6	2.7	2.6	2.2	2.3	2.8	2.2	-4.1	4.9	3.4	2.0	1.6	1.9
Gross Domestic Income	1.3	3.2	2.7	0.8	2.1	2.5	1.9	-5.3	6.5	4.1	1.7	1.4	1.9
Avg. of GDP and GDI	1.6	2.9	2.8	1.2	2.2	2.7	2.1	-5.4	6.4	4.1	1.7	1.3	1.9
Total Consumption	1.5	3.0	3.7	2.7	2.6	3.0	2.6	-5.5	7.2	3.9	1.2	1.5	1.8
Durables	6.1	7.2	7.5	6.1	6.9	6.3	4.8	-9.1	13.4	6.5	2.2	3.1	3.9
Nondurables	1.8	2.6	3.4	2.4	2.5	3.0	3.2	-0.9	3.1	2.7	0.4	0.9	1.2
Services	0.6	2.4	3.2	2.3	2.0	2.5	2.1	-6.3	7.6	3.8	1.2	1.4	1.7
Nonresidential Fixed Investment	4.1	7.2	1.8	0.7	4.4	6.4	2.1	-11.0	4.5	7.2	3.2	2.4	3.1
Equipment	4.7	7.0	3.2	-1.3	4.7	6.8	1.3	-15.2	6.3	8.0	2.1	1.5	3.4
Information Processing Equipment	6.2	5.2	6.6	5.3	9.8	9.2	3.9	-5.1	8.7	7.4	0.7	-0.3	1.8
Industrial Equipment	-1.4	3.9	0.2	-1.1	6.3	4.5	1.1	-12.7	7.1	8.5	-2.1	-4.1	-0.8
Transportation equipment	10.8	11.1	10.6	-5.5	-4.9	6.4	-1.0	-29.0	8.1	22.5	18.8	7.0	4.4
Aircraft	5.5	13.4	1.8	-10.5	11.0	4.1	-31.9	-44.0	74.1	40.3	12.9	5.3	1.6
Other Equipment	2.2	7.9	-6.6	-5.3	7.9	5.6	0.2	-17.2	-0.3	-5.4	-10.3	3.8	9.9
Intellectual Property Products	5.4	4.8	3.6	7.9	3.7	7.4	7.5	-1.4	9.3	6.9	3.1	1.6	1.9
Structures	1.3	11.0	-3.0	-5.0	4.7	4.1	-4.3	-18.3	-7.9	6.1	5.9	5.7	4.6
Commercial & Health Care	3.6	12.9	10.6	17.7	3.2	-0.1	-4.8	-17.1	0.5	16.4	5.4	5.8	5.6
Manufacturing	4.2	12.9	33.8	-5.1	-15.2	-6.1	2.0	-18.2	-9.7	-2.0	5.1	4.2	-0.5
Power & Communication	-4.4	15.0	-3.4	0.3	-0.9	-0.7	-3.2	-5.2	-18.4	-10.5	-3.2	1.9	-0.7
Mining & Petroleum	1.6	8.0	-29.2	-42.9	40.9	24.2	-8.8	-33.5	-12.1	3.9	13.7	5.4	9.3
Other	3.3	8.3	9.3	7.0	1.7	2.6	-2.9	-17.1	-3.6	11.8	9.3	9.0	6.0
Residential Fixed Investment	12.4	3.8	10.2	6.5	3.5	-1.5	-1.5	-13.5	2.3	10.4	-0.1	-1.1	-0.2
Exports	3.6	4.2	0.5	0.0	3.5	3.0	0.0	-4.2	7.2	5.1	4.0	3.9	3.8
Imports	1.5	5.0	5.3	2.0	4.7	4.4	1.0	-13.0	13.4	8.7	-2.3	1.3	1.9
Federal Government	-5.5	-2.6	-0.1	0.4	0.8	2.9	3.5	3.4	0.9	-0.3	-2.1	-1.5	-0.2
State & Local Government	-0.3	0.2	3.2	2.6	0.6	1.0	1.6	0.8	1.8	1.1	0.7	0.8	0.8
Billions of Dollars													
Real GDP	16495.4	16912.0	17403.8	17688.9	18108.1	18638.2	19073.1	18047.2	19189.0	19955.6	20279.7	20549.2	20935.3
Nominal GDP	16784.9	17527.3	18224.8	18715.0	19519.4	20580.2	21427.7	20578.0	22181.0	23412.8	24259.1	25122.2	26166.0
Prices & Wages, Percent Change													
GDP Deflator	1.8	1.8	1.0	1.0	1.9	2.4	1.8	1.5	1.4	1.5	2.0	2.2	2.2
Consumer Prices	1.5	1.6	0.1	1.3	2.1	2.4	1.8	0.7	2.1	2.7	2.7	2.4	2.4
Producer Prices, Finished Goods	1.2	1.9	-3.3	-1.0	3.2	3.0	0.8	-0.3	3.8	2.8	2.8	2.3	2.3
Employment Cost Index - Total Comp.	1.9	2.1	2.1	2.1	2.5	2.9	2.7	1.6	0.1	2.0	2.7	2.8	3.0
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	108.74	99.83	52.68	44.24	54.83	70.96	64.34	28.80	36.13	51.26	61.50	65.43	70.24
Productivity (%ch.)	0.5	0.9	1.3	0.3	1.3	1.4	1.9	-0.9	7.2	-2.1	-0.1	1.6	2.1
Total Industrial Production (%ch.)	2.0	3.1	-1.0	-2.0	2.3	3.9	0.9	-12.2	0.3	4.8	2.0	1.0	1.6
Factory Operating Rate	74.4	75.2	75.3	74.2	75.1	76.6	75.6	63.7	65.2	69.6	71.0	71.5	72.4
Nonfarm Inven. Chg. (Bil. 2012 $)	98.2	90.1	131.3	28.5	35.3	55.2	75.3	-221.3	51.9	185.8	117.9	70.2	68.3
Consumer Sentiment Index	79.2	84.1	92.9	91.8	96.8	98.4	96.0	77.4	87.1	90.9	92.9	94.9	95.9
Light Vehicle Sales (Mil. units)	15.53	16.45	17.40	17.46	17.14	17.21	16.89	13.23	15.05	15.57	15.75	15.85	16.01
Housing Starts (Mil. units)	0.928	1.000	1.107	1.178	1.209	1.250	1.298	1.077	1.121	1.259	1.244	1.209	1.209
Exist. House Sales (Total, Mil. units)	5.078	4.923	5.228	5.437	5.527	5.334	5.330	4.581	5.729	6.221	5.822	5.622	5.628
Unemployment Rate (%)	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.0	7.9	4.3	3.6	4.0	4.3
Payroll Employment (%ch.)	1.6	1.9	2.1	1.8	1.6	1.6	1.4	-4.5	-0.9	5.7	2.1	0.3	0.1
Federal Surplus (Unified, FY, bil. $)	-559.5	-487.7	-478.0	-581.7	-680.9	-873.0	-1022.0	-2259.3	-1972.6	-1294.5	-1090.5	-1083.3	-1199.3
Current Account Balance (Bil. $)	-348.8	-365.2	-407.8	-428.3	-439.6	-491.0	-498.4	-46.8	-181.6	-409.6	-287.1	-204.7	-135.3
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	0.11	0.09	0.13	0.40	1.00	1.83	2.16	0.38	0.12	0.13	0.13	0.13	0.13
3-Month Treasury Bill Rate (%)	0.06	0.03	0.05	0.32	0.93	1.94	2.06	0.30	0.09	0.10	0.11	0.11	0.12
10-Year Treasury Note Yield (%)	2.35	2.54	2.14	1.84	2.33	2.91	2.14	0.82	0.99	1.35	1.59	1.80	2.12
30-Year Fixed Mortgage Rate (%)	3.98	4.17	3.85	3.65	3.99	4.54	3.94	3.23	3.01	3.07	3.23	3.47	3.77
S&P 500 Stock Index	1643	1931	2061	2092	2448	2745	2912	2790	3348	3671	3710	3808	3968
(Percent change)	19.1	17.5	6.8	1.5	17.0	12.1	6.1	-4.2	20.0	9.6	1.1	2.6	4.2
Exchange Rate, Broad Index of Partners	1.012	1.044	1.180	1.235	1.231	1.222	1.263	1.347	1.341	1.268	1.230	1.208	1.194
(% change, annual rate)	1.2	3.1	13.1	4.6	-0.3	-0.7	3.3	6.7	-0.5	-5.5	-3.0	-1.8	-1.2
Incomes													
Personal Income (% ch.)	1.2	5.7	4.8	2.6	4.7	5.6	4.4	1.7	3.1	4.7	3.8	3.9	4.5
Real Disposable Income (%ch.)	-1.3	4.1	4.1	1.8	2.9	4.0	2.9	2.9	1.4	1.1	1.2	1.8	2.4
Saving Rate (%)	6.4	7.4	7.6	6.8	7.0	7.7	7.9	15.2	10.5	8.1	8.1	8.4	8.9
After-Tax Profits (Billions of $)	1789	1857	1740	1740	1814	1844	1850	1472	2220	2277	2319	2465	2683
(Percent change)	-1.8	3.8	-6.3	0.0	4.2	1.7	0.3	-20.4	50.8	2.6	1.9	6.3	8.8

Source: IHS Markit

Summary of the US Economy

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Composition of Real GDP, Percent Change (Q4/Q4)													
Gross Domestic Product	2.6	2.9	1.9	2.0	2.8	2.5	2.3	-7.0	10.1	2.2	1.2	1.5	2.0
Final Sales of Domestic Product	2.0	3.2	1.8	2.2	2.9	2.2	2.7	-5.0	6.7	2.4	1.6	1.7	2.0
Gross Domestic Income	1.5	4.2	1.3	0.9	2.5	2.3	2.0	-6.8	10.3	2.2	1.3	1.6	2.0
Avg. of GDP and GDI	2.1	3.5	1.6	1.5	2.6	2.4	2.2	-6.9	10.2	2.2	1.3	1.5	2.0
Total Consumption	1.9	3.8	2.9	2.8	2.9	2.6	2.7	-5.8	9.4	1.5	1.2	1.6	1.9
Durables	5.0	9.2	5.8	7.3	7.7	3.8	5.9	-9.2	16.1	2.8	2.4	3.4	4.1
Nondurables	2.8	3.2	2.8	1.8	3.7	2.5	3.0	-2.6	6.4	0.7	0.6	1.0	1.3
Services	1.1	3.2	2.5	2.4	2.0	2.5	2.1	-6.2	9.3	1.6	1.2	1.6	1.8
Nonresidential Fixed Investment	5.4	6.9	-0.9	2.4	5.4	5.9	-0.4	-14.7	14.6	4.3	2.6	2.6	3.3
Equipment	5.4	5.6	1.9	-1.4	8.5	5.0	-1.8	-19.3	19.2	3.6	1.4	2.1	4.1
Information Processing Equipment	5.8	6.4	7.0	5.0	12.0	5.6	2.4	-7.7	17.9	3.1	-0.7	0.4	2.5
Industrial Equipment	-2.7	4.3	1.0	-0.3	8.0	3.4	-2.2	-21.1	28.7	1.5	-3.8	-3.1	0.7
Transportation equipment	10.8	9.4	7.6	-8.8	1.3	7.3	-6.4	-26.5	12.6	25.2	15.0	4.0	4.6
Aircraft	22.9	-0.9	-11.4	2.6	8.2	14.6	-45.1	-25.7	78.9	22.9	14.3	-1.3	4.5
Other Equipment	6.8	1.7	-10.3	-2.2	12.6	3.0	-2.7	-26.7	19.2	-14.1	-6.7	8.8	9.8
Intellectual Property Products	4.5	6.9	2.9	6.6	4.0	9.3	5.4	-3.8	15.1	4.3	2.1	1.6	2.1
Structures	6.7	9.3	-10.9	4.3	1.5	2.6	-6.2	-23.5	4.4	5.8	6.0	5.3	4.3
Commercial & Health Care	8.7	13.8	5.6	21.8	-2.3	-2.8	-2.9	-22.2	16.1	11.6	5.0	5.8	4.8
Manufacturing	4.4	29.4	10.8	-7.7	-15.0	-2.0	1.6	-28.3	4.2	-5.1	10.0	2.6	-1.9
Power & Communication	14.6	-16.1	9.1	10.6	-11.4	1.1	1.6	-15.0	-15.1	-5.1	-3.3	1.7	-0.5
Mining & Petroleum	2.0	16.3	-46.8	-23.0	46.8	14.4	-20.0	-35.3	2.4	10.0	9.9	6.6	10.2
Other	4.5	12.5	2.8	9.0	0.5	2.8	-7.7	-20.4	10.3	9.4	10.5	7.2	5.6
Residential Fixed Investment	7.1	7.7	9.1	3.9	4.2	-4.4	1.7	-23.3	22.1	3.4	-1.1	-0.7	-0.3
Exports	6.0	2.9	-1.5	1.1	5.5	0.4	0.3	-4.5	10.1	4.0	3.9	3.9	3.6
Imports	3.0	6.5	3.2	3.4	5.6	3.2	-2.1	-15.0	27.9	-1.5	-0.5	1.8	1.9
Federal Government	-6.1	-1.1	1.1	0.1	1.7	2.7	4.3	2.5	0.2	-0.8	-2.4	-0.8	-0.1
State & Local Government	0.2	1.2	3.0	2.3	0.4	0.9	2.2	0.6	2.0	0.7	0.8	0.8	0.8
Billions of Dollars													
Real GDP	16495.4	16912.0	17403.8	17688.9	18108.1	18638.2	19073.1	18047.2	19189.0	19955.6	20279.7	20549.2	20935.3
Nominal GDP	16784.9	17527.3	18224.8	18715.0	19519.4	20580.2	21427.7	20578.0	22181.0	23412.8	24259.1	25122.2	26166.0
Prices & Wages, Percent Change (Q4/Q4)													
GDP Deflator	1.8	1.5	0.9	1.5	2.0	2.3	1.6	1.4	1.3	1.7	2.1	2.2	2.2
Consumer Prices	1.2	1.2	0.4	1.8	2.1	2.2	2.0	0.5	2.3	3.0	2.4	2.5	2.4
Producer Prices, Finished Goods	0.9	0.6	-3.4	1.0	3.5	2.3	1.0	1.0	2.5	3.3	2.4	2.4	2.3
Employment Cost Index - Total Comp.	2.0	2.3	1.8	2.2	2.6	3.0	2.7	0.2	1.1	2.3	2.8	2.9	3.0
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	108.74	99.83	52.68	44.24	54.83	70.96	64.34	28.80	36.13	51.26	61.50	65.43	70.24
Productivity (%ch.)	1.5	0.5	0.6	1.1	1.3	1.3	1.8	1.9	3.5	-2.0	0.6	2.0	2.1
Total Industrial Production (%ch.)	2.0	3.1	-1.0	-2.0	2.3	3.9	0.9	-12.2	0.3	4.8	2.0	1.0	1.6
Factory Operating Rate	74.4	75.2	75.3	74.2	75.1	76.6	75.6	63.7	65.2	69.6	71.0	71.5	72.4
Nonfarm Inven. Chg. (Bil. 2012 $)	98.2	90.1	131.3	28.5	35.3	55.2	75.3	-221.3	51.9	185.8	117.9	70.2	68.3
Consumer Sentiment Index	79.2	84.1	92.9	91.8	96.8	98.4	96.0	77.4	87.1	90.9	92.9	94.9	95.9
Light Vehicle Sales (Mil. units)	15.53	16.45	17.40	17.46	17.14	17.21	16.89	13.23	15.05	15.57	15.75	15.85	16.01
Housing Starts (Mil. units)	0.928	1.000	1.107	1.178	1.209	1.250	1.298	1.077	1.121	1.259	1.244	1.209	1.209
Exist. House Sales (Total, Mil. units)	5.078	4.923	5.228	5.437	5.527	5.334	5.330	4.581	5.729	6.221	5.822	5.622	5.628
Unemployment Rate (%)	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.0	7.9	4.3	3.6	4.0	4.3
Payroll Employment (%ch.)	1.8	2.1	2.0	1.7	1.5	1.6	1.4	-8.7	5.8	4.3	1.1	0.0	0.2
Federal Surplus (Unified, FY, bil. $)	-559.5	-487.7	-478.0	-581.7	-680.9	-873.0	-1022.0	-2259.3	-1972.6	-1294.5	-1090.5	-1083.3	-1199.3
Current Account Balance (Bil. $)	-348.8	-365.2	-407.8	-428.3	-439.6	-491.0	-498.4	-46.8	-181.6	-409.6	-287.1	-204.7	-135.3
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	0.11	0.09	0.13	0.40	1.00	1.83	2.16	0.38	0.12	0.13	0.13	0.13	0.13
3-Month Treasury Bill Rate (%)	0.06	0.03	0.05	0.32	0.93	1.94	2.06	0.30	0.09	0.10	0.11	0.11	0.12
10-Year Treasury Note Yield (%)	2.35	2.54	2.14	1.84	2.33	2.91	2.14	0.82	0.99	1.35	1.59	1.80	2.12
30-Year Fixed Mortgage Rate (%)	3.98	4.17	3.85	3.65	3.99	4.54	3.94	3.23	3.01	3.07	3.23	3.47	3.77
S&P 500 Stock Index	1643	1931	2061	2092	2448	2745	2912	2790	3348	3671	3710	3808	3968
(Percent change, Q4/Q4)	24.8	13.6	2.0	6.4	19.2	3.3	14.7	-7.7	24.6	4.7	0.6	2.9	5.3
Exchange Rate, Broad Index of Partners	1.012	1.044	1.180	1.235	1.231	1.222	1.263	1.347	1.341	1.268	1.230	1.208	1.194
(% change, Q4/Q4)	2.3	6.6	12.2	3.9	-4.2	4.3	0.6	7.5	-4.0	-4.9	-2.1	-1.6	-0.8
Incomes													
Personal Income (%ch., Q4/Q4)	-0.3	6.7	3.7	2.9	5.4	4.9	4.1	-0.5	6.5	3.7	3.8	4.0	4.6
Real Disposable Income (%ch., Q4/Q4)	-2.5	5.3	3.0	1.6	3.4	3.9	2.4	1.6	3.0	0.4	1.6	2.0	2.6
Saving Rate (%)	6.4	7.4	7.6	6.8	7.0	7.7	7.9	15.2	10.5	8.1	8.1	8.4	8.9
After-Tax Profits (Billions of $)	1789	1857	1740	1740	1814	1844	1850	1472	2220	2277	2319	2465	2683
(Percent change, Q4/Q4)	3.0	2.2	-12.6	8.7	-6.7	9.8	4.1	-11.8	38.6	-1.9	1.9	8.4	8.6

Source: IHS Markit

Alternative Scenarios of the US Economy

	2019:3	2019:4	2020:1	2020:2	2020:3	2020:4	2019	2020	2021	2022	2023	2024	2025
Pessimistic: Larger, longer hit to production, employment, and income (Prob. = 35%)													
Composition of Real GDP, Percent Change, Annual Rate													
Gross Domestic Product	2.1	2.1	-5.5	-50.3	-24.3	11.2	2.3	-14.9	6.0	6.8	4.6	1.8	2.0
Total Consumption	3.1	1.8	-7.9	-60.4	-19.5	32.1	2.6	-17.1	8.4	7.1	3.9	2.0	1.9
Nonresidential Fixed Investment	-2.3	-2.4	-9.7	-63.6	-66.3	-10.4	2.1	-28.8	-3.5	15.5	11.8	5.5	4.6
Residential Fixed Investment	4.6	6.5	14.2	-55.3	-29.8	-28.1	-1.5	-14.6	-14.8	19.9	6.4	4.1	-0.1
Exports	0.9	2.1	-3.1	-15.7	-4.1	4.6	0.0	-4.0	5.7	4.1	3.3	4.2	4.2
Imports	1.8	-8.4	-11.0	-49.8	-65.5	-6.7	1.0	-25.3	14.5	17.5	-0.7	1.8	1.5
Federal Government	3.3	3.4	1.4	6.2	2.0	1.4	3.5	3.4	1.7	0.3	-1.5	-1.1	0.0
State & Local Government	0.7	2.0	2.0	-4.4	3.0	3.4	1.6	0.9	2.3	1.2	1.0	0.9	0.9
Prices & Wages, Percent Change, Annual Rate													
Consumer Prices	1.8	2.4	0.4	-7.3	0.3	1.4	1.8	-0.3	1.5	2.8	2.0	2.2	2.2
Producer Prices, Finished Goods	-1.2	3.3	-3.4	-13.5	-2.0	9.2	0.8	-2.5	6.0	4.1	2.1	2.2	2.3
Employment Cost Index - Total Comp.	3.3	2.6	2.6	-4.7	-9.9	-7.2	2.7	-1.0	-4.6	-1.0	-0.1	0.6	1.4
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	61.93	63.38	45.65	6.58	7.93	13.44	64.34	18.40	36.30	65.52	83.27	92.76	99.18
Productivity (%ch., saar)	-0.3	1.2	-7.6	-8.7	25.2	2.7	1.9	-0.3	7.1	-5.5	0.4	0.1	1.5
Total Industrial Production (%ch., saar)	1.1	0.2	-8.6	-53.0	-45.2	-19.7	0.9	-21.4	0.9	10.3	7.4	2.2	1.9
Nonfarm Inven. Chg. (Bil.2012 $)	77.6	19.0	-28.7	-55.6	-679.9	-1007.5	75.3	-442.9	-84.4	198.4	187.0	68.1	21.5
Consumer Sentiment Index	93.8	97.2	96.6	70.5	54.9	51.5	96.0	68.4	62.8	73.9	82.6	89.5	91.6
Light Vehicle Sales (Mil. units, saar)	17.00	16.73	14.78	4.69	5.72	8.57	16.89	8.44	14.19	16.13	17.06	16.40	15.86
Housing Starts (Mil. units, saar)	1.282	1.441	1.443	1.071	0.822	0.666	1.298	1.000	0.751	1.079	1.220	1.274	1.272
Unemployment Rate (%)	3.6	3.5	3.7	15.8	22.2	20.4	3.7	15.5	15.3	8.4	5.9	5.2	5.1
Payroll Employment (%ch., saar)	1.5	1.7	1.4	-43.0	-37.7	1.1	1.4	-13.8	-0.7	10.3	3.4	2.3	1.0
Federal Surplus (Unified, FY, bil. $)	-237.3	-356.6	-433.1	-554.6	-864.5	-816.1	-984.4	-2208.9	-2688.7	-1920.5	-1446.6	-1351.9	-1452.0
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	2.19	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	0.13	0.13
10-Year Treasury Note Yield (%)	1.80	1.79	1.56	0.60	0.35	0.42	2.14	0.73	0.65	0.96	1.37	1.77	2.12
Incomes													
Personal Income (% ch., saar)	2.6	3.1	3.1	-26.4	-18.3	-6.0	4.4	-6.3	1.9	6.5	5.2	4.0	4.1
After-Tax Profits (Four-qtr.% change)	-1.1	4.1	-12.5	-55.5	-54.0	-41.9	0.3	-41.2	59.7	4.5	7.2	1.0	7.2
Optimistic: Faster "V-shaped" recovery from COVID-19 recession (Prob. = 20%)													
Composition of Real GDP, Percent Change, Annual Rate													
Gross Domestic Product	2.1	2.1	-1.7	-13.9	1.9	5.2	2.3	-1.9	5.0	2.9	1.6	1.6	2.0
Total Consumption	3.1	1.8	-2.2	-15.6	7.7	7.9	2.6	-1.3	5.0	2.4	1.1	1.5	1.9
Nonresidential Fixed Investment	-2.3	-2.4	-4.4	-9.0	-9.5	3.6	2.1	-4.6	5.2	5.3	4.5	3.9	3.9
Residential Fixed Investment	4.6	6.5	17.3	-54.1	-13.1	1.3	-1.5	-9.7	3.0	6.2	0.0	-0.7	-1.1
Exports	0.9	2.1	-4.8	-15.8	1.7	7.9	0.0	-3.6	8.0	4.7	4.3	3.8	3.6
Imports	1.8	-8.4	-6.8	-17.9	-9.2	11.6	1.0	-7.1	9.6	4.3	-0.2	1.6	1.8
Federal Government	3.3	3.4	1.4	6.9	1.6	-0.2	3.5	3.4	0.5	-0.5	-2.1	-1.6	-0.3
State & Local Government	0.7	2.0	1.7	-3.0	2.0	1.6	1.6	0.8	1.4	0.9	0.7	0.7	0.7
Prices & Wages, Percent Change, Annual Rate													
Consumer Prices	1.8	2.4	1.7	-6.1	4.1	4.4	1.8	0.9	3.1	3.0	2.9	2.8	2.6
Producer Prices, Finished Goods	-1.2	3.3	-1.9	-11.7	11.4	12.6	0.8	0.1	5.9	3.1	2.9	2.8	2.5
Employment Cost Index - Total Comp.	3.3	2.6	2.8	1.4	-0.3	0.4	2.7	2.0	1.2	2.4	3.2	3.5	3.5
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	61.93	63.38	50.89	11.33	23.00	32.00	64.34	29.30	44.50	57.50	69.25	76.43	81.25
Productivity (%ch., saar)	-0.3	1.2	-4.8	0.0	14.8	3.7	1.9	1.1	5.7	-0.9	-0.6	1.5	2.4
Total Industrial Production (%ch., saar)	1.1	0.2	-5.9	-26.1	-13.4	-4.7	0.9	-8.7	0.2	3.4	2.0	1.5	1.9
Nonfarm Inven. Chg. (Bil. 2012 $)	77.6	19.0	-29.1	-47.5	-219.5	-235.8	75.3	-133.0	64.5	140.1	105.9	77.2	77.3
Consumer Sentiment Index	93.8	97.2	98.7	72.0	70.1	75.2	96.0	79.0	88.9	92.7	94.7	96.7	97.8
Light Vehicle Sales (Mil. units, saar)	17.00	16.73	15.66	13.35	17.27	16.22	16.89	15.62	16.05	16.76	16.78	16.80	17.03
Housing Starts (Mil. units, saar)	1.282	1.441	1.459	1.107	1.097	1.172	1.298	1.209	1.243	1.294	1.300	1.271	1.241
Unemployment Rate (%)	3.6	3.5	3.4	7.2	8.3	7.9	3.7	6.7	6.7	4.5	3.4	3.7	4.1
Payroll Employment (%ch., saar)	1.5	1.7	2.6	-14.1	-10.2	0.1	1.4	-2.9	-0.8	3.6	2.5	0.6	0.0
Federal Surplus (Unified, FY, bil. $)	-237.3	-356.6	-421.6	-423.3	-672.0	-619.3	-984.4	-1873.6	-1993.2	-1402.0	-1029.8	-995.8	-1187.7
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	2.19	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	0.52	1.03
10-Year Treasury Note Yield (%)	1.80	1.79	1.56	0.81	0.85	0.93	2.14	1.04	1.20	1.60	2.00	2.35	2.58
Incomes													
Personal Income (% ch., saar)	2.6	3.1	5.3	7.8	4.3	-3.0	4.4	4.3	3.6	3.7	4.0	4.1	4.7
After-Tax Profits (Four-qtr.% change)	-1.1	4.1	-7.4	-25.3	-7.7	0.5	0.3	-10.0	38.4	0.7	1.6	6.7	8.8

Source: IHS Markit

Alternative Scenarios of the US Economy

	2019:3	2019:4	2020:1	2020:2	2020:3	2020:4	2019	2020	2021	2022	2023	2024	2025
Pessimistic: Larger, longer hit to production, employment, and income (Prob. = 35%)													
Composition of Real GDP, Percent Change, Annual Rate													
(Q4/Q4 for Annual Values)													
Gross Domestic Product	2.1	2.1	-5.5	-50.3	-24.3	11.2	2.3	-20.7	17.1	5.4	3.0	1.8	2.1
Total Consumption	3.1	1.8	-7.9	-60.4	-19.5	32.1	2.7	-21.1	16.7	5.2	2.9	1.9	2.0
Nonresidential Fixed Investment	-2.3	-2.4	-9.7	-63.6	-66.3	-10.4	-0.4	-43.9	32.5	13.2	8.6	4.9	4.4
Residential Fixed Investment	4.6	6.5	14.2	-55.3	-29.8	-28.1	1.7	-28.8	10.1	12.2	6.7	1.6	-0.4
Exports	0.9	2.1	-3.1	-15.7	-4.1	4.6	0.3	-4.8	9.7	1.6	4.3	4.2	4.0
Imports	1.8	-8.4	-11.0	-49.8	-65.5	-6.7	-2.1	-38.4	61.3	0.5	2.2	1.6	1.2
Federal Government	3.3	3.4	1.4	6.2	2.0	1.4	4.3	2.7	1.1	-0.2	-1.9	-0.5	0.1
State & Local Government	0.7	2.0	2.0	-4.4	3.0	3.4	2.2	1.0	2.3	0.9	1.0	0.9	0.8
Prices & Wages, Percent Change, Annual Rate													
(Q4/Q4 for Annual Values)													
Consumer Prices	1.8	2.4	0.4	-7.3	0.3	1.4	2.0	-1.4	3.0	2.1	2.2	2.2	2.2
Producer Prices, Finished Goods	-1.2	3.3	-3.4	-13.5	-2.0	9.2	1.0	-2.8	7.9	2.6	2.2	2.3	2.1
Employment Cost Index - Total Comp.	3.3	2.6	2.6	-4.7	-9.9	-7.2	2.7	-4.9	-2.2	-0.7	0.3	0.9	1.7
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	61.93	63.38	45.65	6.58	7.93	13.44	64.34	18.40	36.30	65.52	83.27	92.76	99.18
Productivity (%ch., saar)	-0.3	1.2	-7.6	-8.7	25.2	2.7	1.8	2.0	0.6	-1.6	-0.4	0.9	1.8
Total Industrial Production (%ch., saar)	1.1	0.2	-8.6	-53.0	-45.2	-19.7	-0.7	-34.0	27.8	7.5	4.8	1.8	2.1
Nonfarm Inven. Chg. (Bil.2012 $)	77.6	19.0	-28.7	-55.6	-679.9	-1007.5	75.3	-442.9	-84.4	198.4	187.0	68.1	21.5
Consumer Sentiment Index	93.8	97.2	96.6	70.5	54.9	51.5	96.0	68.4	62.8	73.9	82.6	89.5	91.6
Light Vehicle Sales (Mil. units, saar)	17.00	16.73	14.78	4.69	5.72	8.57	16.89	8.44	14.19	16.13	17.06	16.40	15.86
Housing Starts (Mil. units, saar)	1.282	1.441	1.443	1.071	0.822	0.666	1.298	1.000	0.751	1.079	1.220	1.274	1.272
Unemployment Rate (%)	3.6	3.5	3.7	15.8	22.2	20.4	3.7	15.5	15.3	8.4	5.9	5.2	5.1
Payroll Employment (%ch., saar)	1.5	1.7	1.4	-43.0	-37.7	1.1	1.4	-22.3	17.7	3.7	3.5	1.6	0.7
Federal Surplus (Unified, FY, bil. $)	-237.3	-356.6	-433.1	-554.6	-864.5	-816.1	-984.4	-2208.9	-2688.7	-1920.5	-1446.6	-1351.9	-1452.0
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	2.19	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	0.13	0.13
10-Year Treasury Note Yield (%)	1.80	1.79	1.56	0.60	0.35	0.42	2.14	0.73	0.65	0.96	1.37	1.77	2.12
Incomes													
Personal Income (% ch., saar)	2.6	3.1	3.1	-26.4	-18.3	-6.0	4.1	-12.6	11.9	4.3	5.4	3.6	4.2
After-Tax Profits (Four-qtr.% change)	-1.1	4.1	-12.5	-55.5	-54.0	-41.9	4.1	-41.9	66.6	4.2	-1.2	5.0	8.0
Optimistic: Faster "V-shaped" recovery from COVID-19 recession (Prob. = 20%)													
Composition of Real GDP, Percent Change, Annual Rate													
(Q4/Q4 for Annual Values)													
Gross Domestic Product	2.1	2.1	-1.7	-13.9	1.9	5.2	2.3	-2.4	6.4	2.0	1.4	1.8	2.1
Total Consumption	3.1	1.8	-2.2	-15.6	7.7	7.9	2.7	-1.0	5.2	1.3	1.2	1.7	1.9
Nonresidential Fixed Investment	-2.3	-2.4	-4.4	-9.0	-9.5	3.6	-0.4	-5.0	9.2	4.4	4.3	3.8	4.0
Residential Fixed Investment	4.6	6.5	17.3	-54.1	-13.1	1.3	1.7	-17.0	16.1	1.2	-0.5	-0.8	-1.5
Exports	0.9	2.1	-4.8	-15.8	1.7	7.9	0.3	-3.2	9.8	4.1	4.1	3.7	3.5
Imports	1.8	-8.4	-6.8	-17.9	-9.2	11.6	-2.1	-6.2	14.9	-0.7	1.0	1.7	1.8
Federal Government	3.3	3.4	1.4	6.9	1.6	-0.2	4.3	2.4	-0.2	-0.9	-2.5	-0.9	-0.2
State & Local Government	0.7	2.0	1.7	-3.0	2.0	1.6	2.2	0.6	1.5	0.7	0.6	0.7	0.7
Prices & Wages, Percent Change, Annual Rate													
(Q4/Q4 for Annual Values)													
Consumer Prices	1.8	2.4	1.7	-6.1	4.1	4.4	2.0	0.9	3.4	2.8	3.0	2.7	2.5
Producer Prices, Finished Goods	-1.2	3.3	-1.9	-11.7	11.4	12.6	1.0	2.1	4.3	2.8	3.0	2.6	2.4
Employment Cost Index - Total Comp.	3.3	2.6	2.8	1.4	-0.3	0.4	2.7	1.1	1.9	2.7	3.4	3.5	3.5
Other Key Measures													
Brent Crude, Spot Price ($/bbl)	61.93	63.38	50.89	11.33	23.00	32.00	64.34	29.30	44.50	57.50	69.25	76.43	81.25
Productivity (%ch., saar)	-0.3	1.2	-4.8	0.0	14.8	3.7	1.8	3.2	3.3	-1.4	0.0	2.3	2.4
Total Industrial Production (%ch., saar)	1.1	0.2	-5.9	-26.1	-13.4	-4.7	-0.7	-13.0	7.2	2.2	1.7	1.6	2.1
Nonfarm Inven. Chg. (Bil. 2012 $)	77.6	19.0	-29.1	-47.5	-219.5	-235.8	75.3	-133.0	64.5	140.1	105.9	77.2	77.3
Consumer Sentiment Index	93.8	97.2	98.7	72.0	70.1	75.2	96.0	79.0	88.9	92.7	94.7	96.7	97.8
Light Vehicle Sales (Mil. units, saar)	17.00	16.73	15.66	13.35	17.27	16.22	16.89	15.62	16.05	16.76	16.78	16.80	17.03
Housing Starts (Mil. units, saar)	1.282	1.441	1.459	1.107	1.097	1.172	1.298	1.209	1.243	1.294	1.300	1.271	1.241
Unemployment Rate (%)	3.6	3.5	3.4	7.2	8.3	7.9	3.7	6.7	6.7	4.5	3.4	3.7	4.1
Payroll Employment (%ch., saar)	1.5	1.7	2.6	-14.1	-10.2	0.1	1.4	-5.6	2.9	3.5	1.8	0.0	0.0
Federal Surplus (Unified, FY, bil. $)	-237.3	-356.6	-421.6	-423.3	-672.0	-619.3	-984.4	-1873.6	-1993.2	-1402.0	-1029.8	-995.8	-1187.7
Financial Markets, NSA, Quarter Average													
Federal Funds Rate (%)	2.19	1.64	1.23	0.09	0.10	0.11	2.16	0.38	0.12	0.13	0.13	0.52	1.03
10-Year Treasury Note Yield (%)	1.80	1.79	1.56	0.81	0.85	0.93	2.14	1.04	1.20	1.60	2.00	2.35	2.58
Incomes													
Personal Income (% ch., saar)	2.6	3.1	5.3	7.8	4.3	-3.0	4.1	3.5	4.7	3.5	4.1	4.3	4.9
After-Tax Profits (Four-qtr.% change)	-1.1	4.1	-7.4	-25.3	-7.7	0.5	4.1	0.5	23.6	-2.2	2.5	8.9	8.3

Source: IHS Markit

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